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Problems and Difficulties Concerning Children's Education

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Reports and Reviews

Editorial

The second issue of the *Journal of Preschool and Elementary Education* that we are presenting is devoted to problems concerning the education of children at the preschool and elementary school ages. They are significant educational issues.

These topics have acquired particular significance due to the necessity of adjusting the Polish system of education to the current needs of the domestic market and economy, as well as to EU requirements.

The concept of problems in education has a complex character. Some pedagogues claim that such problems encompass situations which are characterised by a lack of balance between school or preschool requirements, and how a child is developing.

It is often considered to be a failure when divergences in the process emerge and become established between the educational aims and children's achievements, as well as the shaping of their negative attitude towards preschool or school requirements is called failures (cf. W. Okoń, *Nowy słownik pedagogiczny*, Wyd. Żak, Warsaw 1998, p. 262–263).

The concept of failures has a normative character, since every educational institution defines its own criteria of requirements. They may refer to various issues, e.g. children conduct, their emotional attitude towards particular situations and things, or their school results. Failures are an inability to achieve these norms.

The notion of failures embraces both educational and teaching failures. Educational failures consist of the incompatibility between children's behaviour and the requirements imposed upon them. However, in the case of incompatibilities between knowledge, skills and habits acquired by children, and the material they should master according to the curriculum, we are dealing with teaching failures.

The causes of failures are generally multiple and complex. They can be perceived as a teachers' pedagogical failure and the ineffectiveness of

their endeavours, as well as children's learning difficulties and the fulfilling of school or preschool duties. Therefore, they are factors independent of children and also relatively dependent on them. From among the various determinants of failures, the major ones include: the socio-economic, bio-psychological and teaching causes.

From the point of view of an individual, failure is connected with an unpleasant personal experience, which results from the fact that one cannot meet the requirements. Such an experience influences personality, and the ability to adapt to the social requirements. Thus, failure is a relative concept, resulting from an incompatibility that occurs between two factors: social norms and an individual's ability to meet certain conditions. For this reason, educational failures are regarded as a harmful phenomenon from both the pedagogic and psychological, as well as the economic and social points of view. Therefore, we have to give some thought as to what triggers the phenomenon of educational failures, and how they can be prevented.

The authors of the articles contained in the following issue attempt to find the answers to these questions.

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Articles

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Machine-music in Preschool Education. How to Provide Music Experience with Classics?

1. The role of music listening in project pedagogy

An integral part of preschool music education is music-listening. In kindergartens, listening to music traditionally includes a song or instrumental music performed by the preschool teacher(s). Little children need to be deeply attached to the person from whom they get musical experience and accept the cultural creations that are passed on. Through this person's activity, little children get to know and may come to lik valuable classical, music, either folk or art. This exchange of cultural values is facilitated by the fact that this age-group is very receptive to all impressions. "We should start in preschool because there children can master easily anything which proves too late in elementary school." (Kodály, Zoltán 1974, p. 92). The role of the preschool teacher is crucial since most of the children are short of such experience at home.

Neither Zoltán Kodály nor Katalin Forrai, whose music education concepts for preschools are acknowledged all over the world, have addressed the topic of listening to music played on technical devices. The low number of disc players, CD players, tape recorders, video recorders, televisions or DVD players in contemporary homes did not motivate either of them, especially not Kodály, to focus on this topic. Today families buy such devices and certainly use them. Small children staying at home continually hear some form of music. But what sort?

It is not an overstatement to say that few have the opportunity to enjoy any music that represents real cultural value: music which has survived centuries and we are pleased to listen to it today as well. Though we also find that children don't close their ears to it, it is nonetheless an unfamiliar experience and it leaves them with ambiguous feelings. So we need to dish up to children this spiritual food and believe that it can give, in addition to its values, pleasure to its listeners. If only our preschoolers would go back home with a desire to listen again to the music which they came to like in the kindergarten. Let's dare to use machines in preschools and use them to listen to valuable music. This so-called "machine-music" can bring joy to preschool-age children.

Music education may include carefully assorted music-listening adapted to the whole course of life in kindergarten: there is not an activity to which no machine-music can be attached. Most of the time, only a passage of the selected pieces of music can be made and listened to by our preschoolers, the section cannot last more than 2–3 minutes. This is the average time preschool children are able to focus on unknown music. To make it a lasting experience, it is worth playing the music again several more times.

Preschool age children cannot go without playing and moving. Thus we need to create situations,and movement forms based on a section of valuable music work. The ambition of this selection is to give some ideas in this field as well.

The comments on the composers were inserted into the study to extend the preschool teachers' music literacy. Though I offer recommendations on how to use the passages, we can give experience in other fields as well by them. The preschool teachers' creativity may produce inexhaustible opportunities for use.

A very popular and established method of preschool education and development is Project Pedagogy. This idea gained ground in education around the turn of the 20th century and was first used in the USA. In Hungary it started spreading in the 1960s. In this method, the knowledge of children is extended in such a way that they gain experience, carry out observations and become active participants of learning. This method-

ology gives children a lot of freedom and lasting knowledge through integrated studies that strengthen each other.

Even when the project is selected we can draw on children's individual thoughts. This is done in the kindergarten using the Freinet--method, where selection of the project theme is based on children's proposals. Of course, we need to be careful when doing this – though we hold children as equal partners, the preschool teacher is first among equals.

The integration of learning activities allows music to be built into projects. However, for example, in a project putting in its focus on the "river" as a topic, music references cannot be exhausted by the singing a folk song mentioning some river in its lyrics. The varied ages of music history offer almost inexhaustible opportunities for our preschoolers to get acquainted with the greatest pieces of music literature.

2. Association of the project "Clock" with the development of musical ability through the use of music sections

Let's single out now the *clock project* and find possible music connections.

An opportunity is offered by the even motion of the clock. A selection of the tempo is important but not only a metronome can be used for its determination (which are usually in short supply in preschools) but also by the second hand of our watch. Beat = 60 indicated by the motion of the watch-hand is an ideal tempo for 3–4-year-old children. Older children may feel this tempo "shambling" but if their minds they turn into bears, the problem is circumvented immediately. Even motion of the watch contributes to shaping the sense of the most important rhythmic area, even the pulse.

As first step let's turn to Zoltán Kodály's Pentatonic Music II, the 100 small marching songs in order to prepare pulsation. Take tune 4 from its written version into a tone that can be played on a flute as well, e.g. D = la pentatonic tone. If we record our flute playing on some kind of simple

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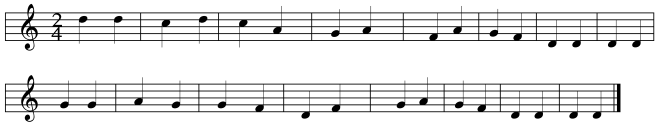
recorder we are able to control the children's rhythmic walking, marching, in a circle form for a big group (5–6 years olds), in a snail form for a medium group (4–5 years olds), in an irregular form, stepping in a small area, and imitating the motion of the watch-hand for a little group (3–4 years olds).



Kodály, Zoltán Ötfokú zene II. [Pentatonic Music] Zeneműkiadó, Budapest 1958. Lesson 4.

Later, when the children have already forgotten the melody, we could dress it up with a verse, e.g. a children's verse from one of the greatest Hungarian poets, Sándor Weöres, with the line, "Fair is the fir", which with its number of syllables matches this tune particularly well. Other nations' children literature must have also some poems with the proper number of syllables with which the tune can be dressed up.

When Christmas is approaching or on a nice winter day, we may extend our repertooirwith a tune to which the children may add a measure by using a triangle in a little group, or they may accompany the preschool teacher's singing with a rhythm-ostinato in a medium or a big group. In our already mentioned project linked to waters another of Sándor Weöres's verses, with the line, "The Flat-boat is standing…" can be sung as well.

After this digression let's turn back to the "clock" project. Children may get to know more clock types if families are willing to bring old clocks, musical clocks by chance, carefully preserved at home. We may associate such lessons with two music sections.

Haydn, "The Clock" Symphony, No. 101 in D Major
Movement 2 – *Andante*

The symphony was completed by the composer in 1794. Haydn wrote more than a hundred symphonies, some of which have nicknames (Pándi, Marianne, 1972, p. 38). This symphony acquired its name after the accompanying instrumental part imitating the clock-beating in the second movement. Children will certainly recognize it if we have already prepared well their perception of an even pulse. We can hear the pleasant melody above the rhythmic clock-beating. While listening to the music we may imagine a musical clock in a beautifully carved elegant box. In little groups, it is enough to listen to the first minute and imitate pendulum-movement. Older children may listen to a two-minute part as well. They may find the first approximately one-minute of music exciting, after a shorter diverging section, it returns again, creating the sense of familiarity in the children who in this age are fond of repetitions. During the second hearing we may encourage them, if it is necessary, to accompany the music with the words "tick-tock" and imitate the movement of a clock pendulum with their hands. We should cut the selected part down to no longer than two minutes because not all children are able to listen continuously to music for a longer time period. This should be kept in mind especially when it is listened to for the first time, and the music is not yet connected with movements.

Here are several thoughts on the composer: Joseph Haydn (1732–1809) was a leading figure of the Vienna classics. In his childhood he sang in the boys' choir of the Saint Stephen Cathedral. As an adult he worked as a court musician at counts' and princes' residences. He spent almost three decades at the Prince Eszterházy Family. During his visit to London in 1791–92 and 1794–95 he composed 12 symphonies called the "London Symphonies". He created two classical genres: symphony and string-quartet. He was the first who composed a minuet as movement of 3 of his symphonies. In Hungary we listen to this dance but without using it as a background of any kind of physical education lessons. The reason

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for this is that it beats in ¾ time while Hungarian folk music, apart from some exceptions, use duple meter rhythms. Other nations, however, where children become acquainted with ¾ time folk songs, may use it for physical development. It is certainly worth listening to through more symphonies and finding favourites among the fast-tempo movements 1 and 4, or ones usable as sleeping music among movements 2, including calm and slow music.

Even the motion of the clock can be presented by another symphony as well.

Haydn, "Surprise" Symphony no. 94 G Major
Movement 2 – *Andante*

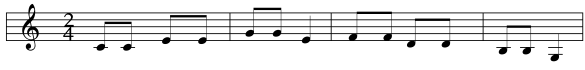
The equally pulsing start of the movement is interrupted by a surprising kettle-drum beat. If we take the introductory part as a sound of a tower clock, the kettle-drum may sound as a bell tolling. We should definitely bang a drum or another instrument with similar effect at this moment of the music. This symphony was composed by Haydn in 1791 (Pándi, Marianne, 1972, p. 39), in the year when Mozart, in his last year, wrote his Magic Flute. This is also a "London Symphony" and is given its name "Surprise" by the London audience just because of the kettle-drum beat.

In this passage we may get the children to observe the difference between the quiet and the loud as well. The topic can be also adapted to make children recognize the question–reply, opening–closing parts, or in other words the period. On Music Day we may get the children to listen to this part of the movement again. It is also suitable for developing form ability. By the end of the antecedent phrase we are opening the door of a baby kitchen or truck, and at the moment the kettle-drum beats we close the doors. On the days of the "Clock Project" we are opening the door of our wall clock and close it immediately when the consequent phrase of the period is sounding. It is important not to let the project supersede the regular every-day music developments. We should find opportunities to insert the development of rhythmical, vocal and form

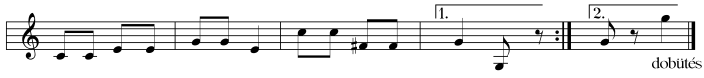
abilities into the course of observations and learning. The project may always provide these developments with more playful elements.

And now let's sing or play on the flute this part of the symphony. Let's do this during our preparation but we can also play the topic of this symphony movement before our group after listening to the music.

Antecedent part – opening



Consequent part – closing



The third composition passage is more vivid in its tempo therefore it should be got heard another day. We may march with game-soldiers or puppets, magically creating the figures of the tower moving on the music.

Zoltán Kodály: Háry János Suite – Movement 2
(Frank, Oszkár, 1986, p. 157–159)

The Hungarian folk opera called Háry János was adapted from János Garay's work "The Veteran" and its first performance took place in the Hungarian Opera House in Budapest in 1926. Following this opera, a suite with an identical name was composed by Kodály, including the Viennese Musical Clock Play in movement 2 (Suite – a series of stylized dances and character plays). While listening to the music, we may be reminded of the musical figurative tower clocks of the larger metropolises. If we visit the Kecskemét Play House, don't let us forget to stand in front of the City Hall and listen to the chime of the bells (the Hungarian folk song that starts "Kecskemét is equipping…" can be heard in it). Musical tower clocks can be naturally encountered in other European cities as well, see the Orjol in the Old Town of Prague.

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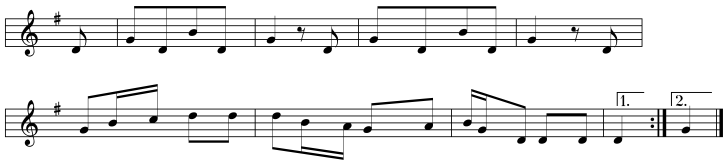
The topic of the opus also has a periodic form, so just as in the case of the symphony, we may adapt it for development of form ability. Inherently here the marching soldiers can be used as tools. We may suggest the articulation of the form by changing direction.



As this topic consists of a double period, we shall take care of changing the direction at every four-beat metre. We can be the guards of the Presidential or Royal Palace and march saluting to the music. Unfortunately we rarely see children walking correctly in a good posture. Do something to change it!

Zoltán Kodály (1882–1967) (Körber, Tivadar, 2000) is respected by music-lovers and Hungarian children as a composer, ethnographer and culture politician. In addition to this play, he produced choir opuses, folk song adaptations, instrumental and oratory works of outstanding quality as well. Out of the latter ones stands out his work called Psalmus Hungaricus written in 1923 for the 50th anniversary of the union of Pest and Buda using Kecskeméti Vég Mihály's translation of Psalm no. 55. Out of his orchestra works the most well-known is the Dances of Galánta which commemorates his childhood years. For preschool age children he composed the Songs of Little People in which he dressed up his melodies representing the sound register of the children's songs in Hungarian poets' verses.

Now let's see another project!

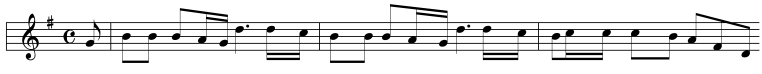
3. Encounter of the music and environmental education in the project "Spring"

Of seasons, *spring* can be selected as a project theme arousing sympathy in all age-groups. Since this topic may evoke uncountable folk songs and there is no better way of music-listening than that of the pre-

school teacher's nice singing, now we recommend no more than two music passages. Though they resemble each other in their character and sound, almost two-hundred years passed between the dates of their composition. One of them has a good reputation and is popular among the public, while the other one is almost unknown. The first was composed by Antonio Vivaldi (1675–1741) (Pécsi, Géza, 2003, p. 169–170) who is a violinist and composer from Italy. He started his career as a violinist of the Saint Mark Church in Venice; he then entered the holy orders. While he formed the genre of modern violin concerto, he achieved considerable successes as a composer of operas as well. In the last period of his life he was the director of the conservatoire of the Saint Mark Church in Venice and established an ensemble, unique in the age and recognized by all of Europe, consisting of orphanage girls.

Though many may believe that out of the compositions addressing the four seasons of Vivaldi's opus, including its movement 1 dedicated to Spring, is already too trivial, we should consider that small children have not necessarily yet met this masterpiece. (However we shall take care not to make our group listen to this opus every year.) Vivaldi's four violin concertos are the first remarkable programme music in the history of music. The works are supplied with sonnets written most probably by Vivaldi. He inserted the verse lines in the partition just before the appropriate music parts.

Giunt' č la Primavera e festosetti	Springtime is upon us.
La Salutan gl' Augei con lieto canto,	The birds celebrate her return with festive song,
E i fonti allo Spirar de' Zeffiretti	and murmuring streams
Con dolce mormorio Scorrono intanto:	are softly caressed by the breezes.



The original key in E Major. Transformation makes it playable on flute as well.

This movement is the music of perfect nature. The starting theme reveals to us the joy-bringing world of spring. We can encourage children

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to move freely and they surely will be jumping cheerfully when the music starts playing.

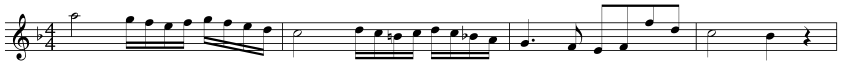
This music has got a programme, therefore the violin solo representing the bird twitter also delights the children.

Since the rule of the performance of the Baroque music is the terraced dynamics in which the repeating parts have adverse volume, the difference between the perception of the quiet and the loud can be well observed (just as in the case of the "Surprise" Symphony) by the children if they listen to it several more times. This music really represents the "rejoicing bird song", suggesting that we could choose the bird flock as a tool. When the topic sounds loud, the childrens' hands should be raised and they fly high like a flock of birds. When the music is lowered, the birds may fly down onto the grass and start pecking quietly. We may also fabricate a simple story in which the small singing-birds escape from the wild predatory eagle, flying high and twittering loud, then when danger has passed they fly down in peace.

The Baroque violin concertos have 3 movements, as does Vivaldi's opus. The order of movements is determined: movement 1 is fast, movement 2 is slow, movement 3 is again fast.

Beethoven Spring Sonata – Movement 1

The energy and high spirits of spring are emanated by movement 1 of this violin–piano sonata. First the beauty and delicacy of the flourishing meadow, then the wild gallop of the forest's game appear in the music, which is dissolved again in peace and tranquillity. The sounds of the violin are like the twittering of a bird.



Pándi, Marianne Hangversenykalauz III. Kamaraművek. [Concert Guide. Chamber Works] Zeneműkiadó Budapest 1975, p. 147–148.

The first movement starts with the theme of the violin bending down from the high and skipping up again. The spontaneous naturalism of the first half of the melody, resembling a bird-song, reproduces the atmosphere of spring in us.

We can tell the children this through a story constructed by us, which can be followed by an approx. 2-minute music-listening from the beginning of the movement.

On another day we can use it to develop music ability. Recognition of the various sounds and tones shall be practised by all group-ages. In little groups it is enough to achieve that children can make a difference between the alternating violin and piano. We can give three of them a violin picture/drawing and another three a piano picture/drawing. Pictures shall be held high when the given instrument can be heard. But it is much more interesting if the two instruments are represented by a bird group each, and the group hearing their instrument shall fly with their closed fingers in the air imitating bird-flight. The preschool teacher may be helped by the fact that the solo of the violin lasts approximately 20 seconds and then that of the piano lasts around the same time. After the two solos, the instruments produce some thunder and at approximately one-and-a-half minutes later the birds come back.

Ludwig van Beethoven (1770–1827) (Körber, Tivadar, 2000) was the offspring of a family of musicians, a pianist and author. The classical master was an unrivalled composer of the music history with his nine symphonies, only one opera (Fidelio), only one violin concerto, piano concertos, string-quartets, without mentioning his other works. His notable melody is the "Ode to Joy", from the last movement of his Symphony 9, known as the European Union's hymn.

4. Links between music and tale dramatization in preschool education

An important element of the preschool-age children's world is story--telling. The returning themes of folk tales are evil and good, and their

conflict. Numerous works of music literature contain sections representing this conflict. Let's put together several elements of this kind. The tales are selected from Hungarian folklore but similar topics can be taken from all nations' treasure troves of tales by local preschool teachers.

The first tale is the *Seven Ravens* (Illyés, Gyula, 2010). The wicked character is the witch with an iron nose who transforms seven young men into a raven. The good is represented by a girl who saves her enchanted brothers. If we dramatize the tale with children, we can find music passages, each for the two characters, which can follow the main figures' act.

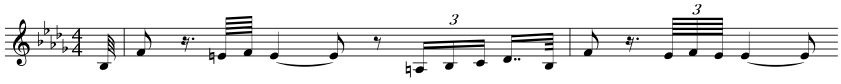
The good can be represented by a section of *Tchaikovsky's Sleeping Beauty Suite 1*. The string-orchestra sound gives the music a soft character. The medium fast, almost sweeping tempo models the youthful dynamism.

Pyotr Ilych Tchaikovsky (1840–1893), a Russian composer became a musician after he had completed his legal studies. In his works, the European classical tradition mingles healthily with the typical Russian intonation. The inexhaustible exuberance in melodies makes his works extraordinarily popular. His opera (Onegin) and symphonies are complemented with his dance plays which are the pearls of Russian ballet-literature.

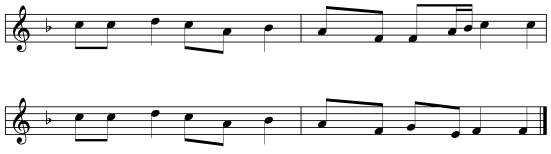
The wicked can be represented by a piece of another Russian composer: the Russian dance from *Stravinsky's Petrushka* (Orfeusz Hangzó Zenetörténet 7). He was inspired by the world famous choreographer Gadilev to compose the story of the tragic Russian folk tale figure in a dance play. The harsh rustic music can evoke impressively the witch with the iron nose. The effect is increased by the starting drum beat and the following symmetric pulsation.

Igor Stravinsky (1882–1971) is a composer of Russian origin, who became a real cosmopolitan. His early works were encouraged by the master of the Russian Ballet, the above mentioned Gadilev: the Fire Bird, Petrushka and the Rite of Spring. His style shifted and he produced e.g. The Soldier's Tale, Pulcinella, Psalm Symphony, Oedipus Rex, The Rake's Progress.

In another tale, evil can be associated with the picture representing Samuel Goldenberg and Schmuylet in *Mussorgsky* and *Ravel's* joint composition, *The Pictures at an Exhibition*, in which Samuel is the evil in the interpretation of the picture as well. The theme is played by stringed instruments resulting in a very frightening effect.



The good and gentle character on the other hand can be represented by a part of *Ferenc Farkas' Old Hungarian Dances* (Pécsi, Géza, 2003. p. 251). The piece evokes the world of the Renaissance, elegant, definitive and very tensely formed music, fits the positive character of a Hungarian folk tale.



At the end of the music, when everything eventually turns out for the best and all of the figures start dancing, our preschool children may join the dance as well. We may perform the dance with very simple step combination (the best is the two-step czardas) for Ferenc Farkas' music or any of the Hungarian dances of the 16–17th century.

Telling, learning and dramatizing a tale require a time period of at least two weeks. It is necessary to connect this process to a constant element like a musical invitation to the "tale-telling corner". Let me recommend a work which would be surely welcomed by children: a piece composed by Robert Schumann (1810–56). He was an excellent figure of the German Romantics who achieved his first successes as a piano artist at a young age. As a composer he was acknowledged for his miniature character plays and songs written primarily for the piano. His opus "Kinderszenen" (op. 15) is played on a piano as well. We recommend as a piece of music that invites story-telling the first episode of the composition consisting of 13 various stories with different a character.

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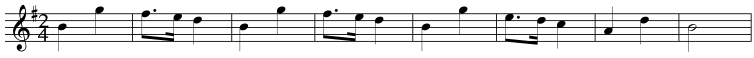

The singing in an upper voice is made transparent by the triplet rhythmical sound-decompositions of the bass. It has a magical effect enhanced by the pleasantly quiet sound. We can have a real "once upon a time" feeling if we get to hear it.

But not only section 1 can be associated with story-telling. Meditation on the titles (1. Of Foreign Lands and People; 2. A Curious Story; 3. Blind Man's Bluff; 4. Pleading Child; 5. Happy Enough; 6. An Important Event; 7. Dreaming; 8. At the Fireside; 9. Knight of the Hobbyhorse; 10. Almost Too Serious; 11. Frightening; 12. A Child Falling Asleep; 13. The Poet Speaks) may inspire us to make our own short stories for the small movements. And it cannot be excluded that our preschool children also want to create their own tales under our supervision. Let's make use our fantasy!

5. Summary

Our last example also shows that a composition or a section of it may include a lot of opportunities which can be exploited by careful listening. The most important function of music listening in the framework of a preschool activity or project is to give children the experience of music which they may not receive at home from their parents. These experiences shape children's abilities, especially their sense of form and music-recollection, which have a considerable impact on other areas: logical and motion faculties, and the ability to memorize.

Music sections incorporated in projects create in children the need to explore the world around them, not only in details but in the larger context of the phenomena, and they become aware of the beauty reflected by their lives.

By this method, the transfer impact of music can be easily detected and it depends only on the preschool teachers' creativity how children's life will be influenced by the selected 'music'.

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Abstract:

Our ancestors' cultural heritage should be passed down to all generations. This process can begin as early as the preschool age.

The materials of music-listening in preschool education can be performed by the teachers. In this age, music experience is more effective and long lasting if children can see personally the performer as well. The development of the technical instruments nowadays, however, gives us the opportunity to listen to records of good quality in kindergartens. Children may receive no other valuable compositions, and most preschool teachers need help in the selection. This study's ambition is to give some recommendations in this field.

Several opuses have been selected to complement certain activities of project pedagogy. The study also shows other possible usages by providing supplements on music history, form and the style characters of the passages, as well as assistance in achieving favourable outcomes in relation to music-listening with methodological advices. The selected projects – clock and spring – represent important knowledge, and with the experience given by music-listening we are able to bring these topics closer to children.

Another important area of preschool education is listening to stories and the learningof stories. When tales are dramatized, all branches of arts can be linked together. A carefully selected passage of music may help to create a more impressive performance for the stories.

Keywords: music-listening, project pedagogy, tale dramatization

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Gestalt Approach of Albert Höfer in Religion Classes during the First Four Years of Primary Education

Introduction

After many years of being part of an integrated Czechoslovakian system, Slovakia has been trying to create their common profile in teaching Religion since 1989. There is an obvious process of searching for adequate didactic methods that would motivate pupils and improve the teaching efficiency of the subject taught in primary schools during the first four years. I see the process as a space for reflection due to the constantly changing object of teaching – which is the pupil – influenced by various new factors (such as mass media, images etc.) In this context I find it very interesting to take a closer look at the Gestalt Approach used by Austrian teachers of Religion. The Gestalt Approach is not yet well-known in Slovakia. In the Czech Republic and Slovakia, it is rather more often used within the fields of psychology and therapy. I learned more about this approach in 2001–2003 during my three-year course in Graz, Austria, which was lead by researchers from the Institute of Gestalt Education and Therapy and organized by the Methodical Centre in Bratislava, Slovakia. The course was lead by Prof. Albert Höfer and Dr. Katarina Steiner. In that time I became an internal doctoral student at the Faculty of Education of the Catholic University in Ružomberok, Slovakia, and I started to study the Gestalt Approach more closely. In September 2003 I started my one-year international study programme at the Academy of Religious Education in Graz-Seckau, Austria. This programme aimed to acquire a detailed knowledge of the education system and its teaching methodology and instruments.

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The Austrian system of educating teachers of Religion is different from the Slovak one: the teachers of Religion for primary schools study at the Academies of Religious Education, but the teachers for secondary schools (both academic and vocational) study at the Universities (Faculty of Theology). During my first months at the Academy I noticed that the Gestalt Approach was considered to be fundamental, and not an alternative, for teaching Religion during the first four years of primary education (further referred to as 1–4). A whole set of pupil's books for Religion 1–4 is based on this approach.

When speaking about the Gestalt Approach, we should not forget to mention Prof. Albert Höfer who has applied the Gestalt Approach in religious education in America and Germany. He is a 76-year-old diocesan priest, who used to teach catechetics and homiletics at the Faculty of Theology. More than 27 years ago he completely lost his eye-sight and that brought him closer to the Gestalt Therapy. He used to be very active in his scientific field and the loss of sight lead caused him to lapse into depression. His faith in God and the Gestalt Therapy helped him to accept his fate. He realized that the Gestalt Therapy could be helpful even for his healthy students and teachers of Religion, too. Being blind he has written many books and is still active in this field. He founded the Academy for Teachers of Religion in the Graz-Seckau Diocese and became its director for many years. He elaborated the base documents for the curriculum of Religion 1–4 and his students prepared textbooks and methodical handbooks for each year of the first four years of primary schools.

Between 2001–2003, Prof. Höfer lead a course of Gestalt Education and Assistance together with Dr. Katarina Steiner for approximately 40 teachers of Religion in Slovakia. The course participants had a chance to learn about the various methods of Gestalt Approach and be formed by them as well.

The Gestalt Education Institute lead by Prof. Höfer, contains four stages of studying the Gestalt Approach. Each stage takes about two to three years. This approach works with one's heart and that is very enriching. Students search for answers to questions which rouse one's fantasy and self-identification. The Gestalt Approach uses both picture and

text in a unique way. Its goal is to transmit a lesson. Pupils become co-authors. The pupil has to accept the object of a lesson with all their senses: hands, heart, mind… in order to accept the lesson itself. The approach goes from written text to a free re-telling; from heard text to the inner picture full of phantasy; from the inner picture to a personal drawing; from picture perception to personal identification with the picture; from biblical discussion to an educational game; from the message of peace to eliminating aggression; from the outer listening of the topic to the inner realisation of its fundamentals. Prof. Höfer is a master of working with phantasy, especially with the phantasy of pupils or course participants. In various biblical texts that are followed by picturing, he can reveal many psychological aspects which update the biblical concepts to the man of our times. The Gestalt Approach can be used in any kind of education because it uses the experimental method to deepen knowledge and what's more, it employs one's heart and helps the man to gain new information.

1. Interpretation of the term „Gestalt"

The term *Gestalt* is the central term of the disciplines Gestalt psychology, Gestalt therapy and Gestalt pedagogy. It originates from German and it means the "shape, form, figure, structure, configuration" (Hartl, Hartlová, 2000, p.179). Yet in 1886 the physicist Ernst Macht used the term *Gestalt* in relation to the perception of space and form. Christian von Ehrenfels in his theory about shapes has adopted the idea of Macht who explains how to perceive and to conceive a spatial shape. "For example, when we are looking at a tree, we do not perceive only his single parts: the trunk, the tree-top, the branches, but we also see one unit, one gestalt – one image, shape." (Hufnagl, 2003, p. 16). Furthermore, a man is not only a sum, a connection of the different parts of a body, but he is an individual who has the certain image, figure, shape. He is a personality. The term "Gestalt includes the holistic notion of the whole, the wholeness. The whole is more than the sum of its parts" (Cebrat, 2003, p. 2). This

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definition is possible to understand in connection with an example about flowers. When a man is watching single flowers, he can see a violet bellflower, he can smell its scent. He can see a yellow dandelion, red field poppies, etc. If he perceives all these flowers jointly in a meadow, then what is important for him is the casting of colours of single flowers, scents, the influence of the weather, those sounds which are resounding at that moment on a meadow. From the coloured scale of flowers arise different new colours, or shades, scents, that fall under the influence of other determinants – the weather, the geographical zone – rouse the certain feelings, thoughts, and give the certain atmosphere to the whole. The whole which rises from all of this is then more than just the sum of its individual parts. It means that the overall atmosphere of a meadow is much more than its individual components; in this case single flowers, soil, and meteorological situation, etc.

The term Gestalt emerges in several disciplines of science. In Sociology the interpretation of the term Gestalt relates to its above mentioned explanation. It denotes "the integrated dynamic of the whole which is not possible to analyse and it is impossible to understand it by fragmentation, because it is always more than a summation of parts, and so it is not derivable from assembling of the qualities of its components" (Geist, 1992, p. 100). We say here about the tendency to unity, complexity, about over-summation, about the organised whole, the parts of which are in a certain way interdependent; they have certain signs, by which they are connected to the whole. The solidity of the shape – gestalt – is dependent on the level of the mutual dependence of the parts. The more the shape is solid, the greater the dependence of each of its parts on all the others, and the more this dependence influences its parts. "By the name Gestalt we understand such shapes – thoughts, spatial formations that have specific attributes as the wholes, and so we can justly comprehend them as separate entities." (Geist, 1992, p. 100).

As Christian von Ehrenfels was the first to use this notion, he became the pivotal character of Gestalt psychology – complex, shape psychology. "This term has been used for the denomination of the approach that Max Wertheimer and his colleagues Kurt Koffka and Wolfgang Köhler

maintained." (Atkinson, 2003, p. 8). Gestalt is understood here as the sample, figure, model, peculiar method, sort, namely as the whole, not the preferred single elements. The term "whole" then becomes "the central term of the complex, shape psychology. It is underlined that organic, psychological, social effects and processes are of a complex character. The complex approach in psychology is possible to regard as an anti-pole of mechanic and elementaristic comprehension of a cause and an impact." (Hartl, Hartlová, 2000, p. 8). Other terms are often related to the term Gestalt: figure, character, image, background, which Gestalt psychology often uses. It also has something to say about the fact that every figure corresponds with a different background. Gestalt theory sets the character to the forefront following the experiences, regarding the background, which altogether creates gestalt – image, shape.

The term Gestalt is active even nowadays, mainly thanks to Gestalt therapy, the establisher of which was Fritz Perls. He has expressed "that the nature is entirely organised and we have to understand the function of one part in the complex structure. Gestalt, the wholeness is expressed in the statement that the part is in a mutual relation to the whole, and the whole has much to do with the part." (Klaushofer, 1989, p. 18). Gestalt – the shape – arises mainly on the basis of configuration (composition, linkage) of individual parts. Often the shape does not change, although its details do. An example with a melody is most frequently stated: "A melody played by different instruments, in different keys, though remains always the same. We say that it is transposed." (Kern, 1999, p. 44). In order to improve our comprehension of the term it is interesting to have a look also at the connection with a verb having the same stem. In German language a word "Die Gestaltung" means "figuration, formation" (Seebauer, Maňák, 1999, p. 57), which in the area of application to the religious education A. Höfer has expressed: "The term Gestalt has in European heritage far reaching roots which give Gestalt pedagogy basic impulses. Even the very collocation – something gains a form – shows that there a realisation of matters." (Höfer, 2004, p. 8). In religious education, there exists the aim of Gestalt pedagogy in relation with the genesis of the very notion to achieve, that the belief of pupils would "gain the

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certain form, to give the form to their belief, what will become evident in their creative co-operation" (Höfer, 2004, p. 8).

2. Criteria for Gestalt pedagogical teaching

Criteria for Gestalt pedagogical teaching appears from the described principles of Gestalt pedagogy. According to Burow, Quitmenn and Rubenau from 1987 there exist the following criteria:

1. To join the contents of teaching with a personal meaning.
2. To give consideration in a school-teaching to the individual biography of each pupil, his personal life history.
3. To give consideration to living conditions of an ordinary school day.
4. To realise the principle here and now within the frame of a school class.
5. To affect all senses during a school-teaching. Heed to the importance of action of more senses, because there are pupils who perceive more by sight, whereas others perceive more by hearing etc.
6. To take advantage of the constant motion and dynamics of the atmosphere, which is formed through a school-teaching process, and which increases in a class, in the school yard, in a gym, etc.
7. To try continually to create a proximate, not artificial communication.
8. To drill active listening with pupils.
9. To perceive in a school-teaching process also non-verbal communication.
10. To establish positive and helpful relations between teachers and pupils, but also between pupils mutually.
11. To experiment with decisions.
12. To make use of a fantasy.

13. To make use of arts, music, role-playing, literature, dance, etc., and therefore to help the development of a pupil's personality, to take advantage of an expression of personal dispositions of each pupil.
14. To endeavour to achieve, that pupils would produce most of their own study materials. Not to let them passively accept things from their teacher.
15. To utilise games and exercises. (Burow, Quitmann, Rubeau, 1987).

To these basic criteria which were formed by the founders of Gestalt pedagogy, there are two more stated in the contemporary literature:

16. Do not do anything for a pupil that he can do himself.
17. "Experience-orientated, diverse and flexible teaching is very important. Operational forms should be changed during the course of a lesson, e.g. writing, painting, playing, representation, circle games, pair work, group work, role-play, stage play, scene setting, jumping, singing, etc." (Pohlhammer, 1999, p. 22).

Gestalt-pedagogic teaching is not characterized only according to used methods and exercises, but mainly according to the fact that it:

– teaches students to initiate and interrupt contacts between people (Neuhold, 2008, p. 6–9),
– teaches students to intentionally manage their relationships with others (Müller, 2010, p. 16–18),
– cultivates their correct assessment of situations, phenomena and people,
– teaches students to go through and overcome conflicts and make decisions in conflict situations,
– teaches students the correct self-expression and self-reflexion not only verbally but also mentally,
– evokes a self-reflexion processes (Zelina, 2000).

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3. Methods of Gestalt pedagogy

In Gestalt pedagogy there are these preferred methods: identification/projection, fantasy/imagination exercises, exercises for self-observation and observation of surroundings, work with a body and motion, games with assigned roles (role-plays), simulation, utilizing of creative means, exercises for communication in a group and the increasing of self-confidence.

Identification

One of the most common methods is identification, which occurs in connection with an activity of a man. The following forms of identification are quite common: with a text, a plant, a thing at which a man imposes himself to them with his feelings, perception, etc. The exercises, which pupils perform, are often those in which they "become" something else. For example: a flower, a stone. E.g. "I am a tree, I have a big thick trunk, and many green leaves. I am about 200 years-old and I have gone through a lot…A pupil describes what kind of a tree he is, what trees are around him, what this tree is experiencing. A teacher asks him questions." (Burow, Quitmann, Rubeau, 1987, p. 34). While working with a picture, a very strong identification occurs with characters, and an action in the picture. "Describe what you can see. How are you feeling at this? What does it evoke in you? What would you like to do?" (Burow, Quitmann, Rubeau, 1987, p. 34). In the same way, for example, conflicts and tensions in a class, including the non-acceptance of a pupil by the group, can be solved very well through identification exercises. A teacher can use a method of a dialogue of two chairs, when he is seated on one of them and speaks on behalf of it, e.g. like a pupil unaccepted by a collective, and when he is seated on another one, he speaks on behalf of a class. A dialogue happens there. Pupils watch a situation and gradually understand what a teacher wanted to show. By the fact that there rose the identification of chairs with people and their problems, the aim of education and the action of a teacher was accepted willingly, without a pressure. "Identifica-

tion emerges from an assumption, that each of the factual contents, each piece of information, each problem has a sentiment charge, everything has a personal sense. The affective charge of identification as a method, increases a personal sense and the efficiency of memory, by what it offers multifarious options of the utilization." (Bürman Fosterová, Kienzlová, 2001, p. 30).

Exercises with a fantasy

Work through fantasy has in Gestalt pedagogy a very important role. "Imagination starts by a preliminary relaxation of pupils. A released, stress-less situation contributes to the fact, that the educational potential is better utilised, and it supports optimal teaching." (Müler, 1998, p. 104).

Demonstrative pictures are able to activate potentialities which are hidden in the personality of pupils. While working with a fantasy it is very important to accommodate a room for the use of this method. Blankets and carpets are very often used to be able to lie down and create the best position for releasing of imagination. Moreover, the posture of a body of pupils, such as closed eyes, certainty and tranquillity of pupils, breathing, peace and relaxation, good comprehensibility of the teacher's commentary, from whose words emanates a visualization, a fantasy of pupils is important. Fantasy exercises make teaching effective; they affect relaxing, increase the ability to concentrate, improve the efficiency of memory, relieve pupils of physical and mental tension. They offer the energy for another activity. (Bürman, Fosterová, Kienzlová, 2001, p. 31).

For an exercise using fantasy, it is possible to use a narration of a story. A teacher retells a certain story and pupils visualize it having their eyes closed. For example: "Today we are at the end of our stay in a school in the country. Close your eyes…, breathe calmly and regularly… Now you are returning back in your fantasy to the day we arrived here. Bring yourself over, how were you feeling when you arrived here… What was your first night like…? What was your impression when you arrived here…?" (Burow, Quitmann, Rubeau, 1987, p. 41). Work with fantasy is particularly necessary, because in school-teaching there is always the reason in the forefront in the development of man, rational thinking,

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cognitive side of a personality, and emotions and the spirit remains in the background. "The idea that we do not have all our wealth in knowledge, but also the wisdom and a deep feeling of responsibility is important in our internal world, is very fascinating. Even nowadays a meditation is very important, and a reflection on ourselves." (Burow, Quitmann, Rubeau, 1987, p. 40). Images emerging while working with a fantasy are further expressed in different versions. Pupils are talking about them in pairs, groups, paint them, express them by their own body.

Self-perception and perception of others

The structure of perception of each man is always dependent on his personal, individual life story. Self-perception, perception of the others, self-reflection, and reflection on the others, has unfolded from all of this. For the development of self-perception and the perception of the others, feedback as a central method is needed. Gestalt pedagogy uses direct and indirect feedback mainly in a class, where it is required to perceive the social behaviour of individual pupils. It is not only important for pupils to get the information from a teacher – positive feedback on their performances and behaviour, but also to teach them how to express it to other individuals." Feedback represents control in the social sphere. Control does not mean that I must implicitly operate on the basis of the feedback, but I have the possibility to decide which consequences that result from it I want to use for myself and my personal development" (Burow, Quitmann, Rubeau, 1987, p. 48).

Direct feedback

For example: "A person conceals something hidden in himself, e.g. an anger, which he expresses only to the certain person. Then, there are two people present in the process of communication, and feedback should help the quality of their relationship to gain new, richer dimensions." (Burow, Quitmann, Rubeau, 1987, p. 49). At the level of direct feedback, a person who perceives this anger, expresses his feelings verbally directly to the person concerned. At the direct feedback there are two people indrawn to communication, and they decide which direction it will set out.

Indirect feedback

It often comes to feedback which is not interpreted directly. For example: I, as a teacher, announce something, and a listener – a pupil, starts to rock on a chair, or some pupils start to whisper something mutually. A pupil's rocking motion on a chair represents his indirect feedback, by which he expresses to me, as a teacher, for example, his lassitude about a topic, disagreement with my expression, etc. "Feedback is expressed in a direct verbal form, but the experiencing of the one who expresses it, can be also expressed indirectly on his face (irony, sarcasm, etc.)." (Burow, Quitmann, Rubeau, 1987, p. 49). Feedback should not only succeed to something that has failed, but it should succeed also to positive acts and performances. It must be specific and it must be clear to a pupil what a teacher wants to announce to him: perception, presumptions, feelings. It must be described in relation with a particular behaviour. "The one to whom feedback is addressed should have an obligation to listen first, without commentary, only after that it is suitable to answer." (Burow, Quitmann, Rubeau, 1987, p. 50).

Work with a body

"In the frame of Gestalt pedagogy there are two essences which we have regard for in teaching: the awareness of a body, and the involvement of a physical dimension to professional teaching." (Burow, Quitmann, Rubeau, 1987, p. 56). Teaching constantly draws attention to the fact that a body of a pupil presents a very important element of himself. Lessons are interwoven with short activities, which activate pupils to a movement. There are plenty of methods that a teacher uses during lessons. Pupils often work in pairs, groups, dance to music, move by hands, etc. These kinetic short activities serve the purpose of a quick rest of pupils during cognitive work, and a change of activity, which is very necessary for young pupils, as their ability to concentrate lasts only 8–12 minutes. By a short exercise they reconcentrate and can continue to engage in the further teaching process. Gestalt pedagogy, as the integrative teaching, provides a great space for physical activities.

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4. Four elements of Gestalt-education Bible activities

Gestalt education as such is widely used in Europe but fairly new as far as Bible activities are concerned. The subject of Gestalt-educational Bible activities is the Word of God – Kerygma which is introduced in a biblical context but can be transformed from an old event of salvation to the present listener. In other words, kerygma has to "change its form". The important milestones of this transformation are the cornerstones of didactics in the methodical process of Bible teaching. They are included in the Gestalt education. The four elements can be illustrated as four parts of a large window divided by a cross:

1. *Meditating the text* is the starting point and the target of Bible activities even in cases when the text is "well-known" to the pupil or participant.
2. *Observing the picture* means almost the first pupil's contact with the biblical message in order to "encounter a text transformed into an artistic dimension which is not meant for aesthetic perception but for being a base stone for a complex conjunction process between the story and the picture. The goal of all work is to incorporate the content personally and to absorb it." (Höfer, 1997, p. 21).
3. *Retelling the biblical text* is the bridge from the text to the picture. It can be full of colourful details or rather historical and factual (the teacher points out to three people walking on the road). It is of an advantage if the teacher uses the power of creative speech.
4. *Creative activities* are the core part of each Gestalt education. "According to the topic and material, a creative process is started which combines the unawareness of a pupil and the richness of a religious symbol into a certain form and thus visualises both dimensions at once. In other words, the "fruitful moment" is used here, as known already in the old pedagogy and methodology,

according to which the pupil's interest can be raised by special assignments (observing, creative changes, community activities etc.)." (Höfer, 1997, p. 28). From the theological point of view, the pupil reaches out for the part of the biblical message which strikes them the most. In the creative activities the pupil can see in their personal response to what God wants to tell them at the moment.

The core pillars of Gestalt are the three laws or basic principles of the Gestalt education.

First Gestalt principle

The first Gestalt law: "The reality is more than just a sum of its parts" is significant especially for determining the curriculum, choosing the topic and didactics. There is no way one can simply take a list of theological terms and divide them into the years and lessons of religious education. What is the main subject of Religion? It is the living person of Jesus Christ who can be divided into neither a set of theological terms nor events of his life and teaching. On the contrary: "if a pupil begins to see Jesus from a different perspective through understanding a certain event of His life, they will understand more of the message than any theological tract could bring."(Höfer, 1997, p. 16). The inexhaustible mystery of God became flesh; that is to say, something concrete, substantial and inviting to meet. Hence, the Gestalt Approach is based on the principle „Pars pro toto," i.e. the unity is offered a short extract. Pupils learn about Jesus through various stories which they can experience, create and become part of.

Second Gestalt principle

The second Gestalt law is the principle of characters' background – according to which „things can be visible, heard and perceived only if they are differentiated from their background." (Höfer, 1997, p. 16) For instance a tree cannot be seen in a dark night until it is enlightened by the morning dawn. A voice or a melody cannot be heard in the roar of a jet

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plane. These obvious laws of the perceptive psychology are very effective when used in education. Teachers can better understand their pupils if they know their background, i.e. their life-stories, religious experience and/or their roles in the class. Similarly, teachers have their backgrounds, too. The life background is partially conscious and called back in memories but mostly subconscious. Gestalt education has borrowed a lot from Gestalt therapy which aims to understand man on the basis of their subconscious background. Lessons gain new dimensions if the subconscious background is implied.

Third Gestalt principle

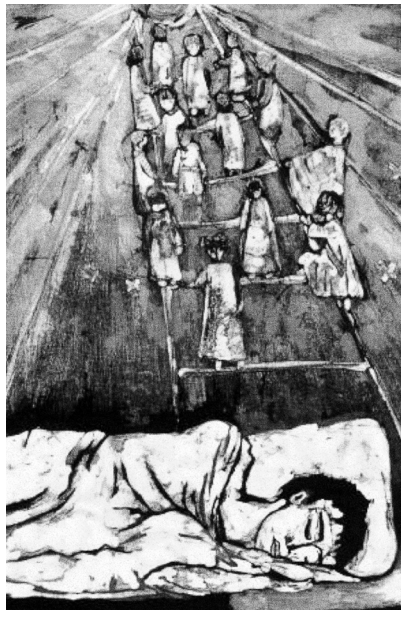
The third Gestalt law is based on the principle: "here and now". Each reality becomes real only in the presence and can be realised in coexistence on the same place." Its future value can be judged according to the degree to which it can be involved in the presence." (Höfer, 1997, p. 17). It is remarkable that adults remember their classes of Religion by speaking about their teacher first, then remembering the things they did, and only then they remember the substance of the classes. The atmosphere of the tutorial process has a crucial influence on the content of the education itself. The principle of presence fulfils itself most deeply in its theological sense. Thomas Aquinas said that the faith of the faithful did not refer to spoken words but to the matters in their background; that is to say, to God alone. In any aspect, the presence of God gives the religious classes the principle "here and now." God's personal presence is delivered through parables, symbols, metaphors, and myths and thus reminds us of the ways of how to understand it at all.

5. Example of Gestalt education

(*Jacob's Way of Conversion*)

The following is an example of Gestalt education (picture activities): there is the story of Jacob. Working with a picture is a very common method of Gestalt education. For each biblical story, teachers use a set of

9 pictures which make one unit. The pictures are painted by Anna Seifert, a painter from Austria. Pupils listen to a biblical text and look at the picture. Each picture can be used individually to retell the story and to absorb it in a very personal way. The integrative biblical education combines the message of the picture with the images that the pupils can see. Picture activities can even turn to work with dreams or fantasy. Such activities can be stimulated by twelve incentives listed below, which can help the pupils to move from the outside to the inside. "The order of incentives may be changed according to the situation."



Picture no. 1:
Jacob's Way of Conversion
(Anna Seifert)

1. What do you see? (picture description)
2. What in particular comes to your mind? (important detail)
3. What do you especially like and dislike? (assessment)
4. Which person is addressing you? (accepting a relationship)
5. If the person could speak, what would he/she have to tell about their life? (creativity)
6. If you were this person, what would you tell us? (speak in the first person) (identification)

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7. Would you like to talk to this person? (contact acceptance)
8. What would you call the picture? Give it a title. (topic identification)
9. Close your eyes: how do you see the picture in your heart? (phantasy activity)
10. If you could paint or take pictures, what would you change in this picture? (critical attitude)
11. Write a story based on this picture (Once upon a time …). (transformation)
12. What does the picture say to a modern man? (modernization)" (Höfer, 1997, p. 28)

These forms of picture perception are based on the premise that through the teacher's narration and their own observation, the pupils have already established their own intense relationship to the picture. The pictures should help them realize things which emerge from a semiconscious relationship to the picture. Everyone perceives the picture through their own eyes. The teacher retells the biblical story of Jacob with the aid of picture activities Prof. Albert Höfer who applied gestalt education in the religious education, found parallels of this story to the problems we encounter today, such as sibling rivalry; the pathological addiction of the mother to the youngest son; the power of love; and last but not least the fear of parents who do not want to let their children go. His way of connecting facts and contexts is really unique and skilful.

Speaking of these terms, Prof. Hans Neuhold, follower of the model of Prof. Albert Höfer, who has been involved in Gestalt-pedagogy in Religious education at the Academy for teachers of Religion in Graz, Austria, for years, has used a very pertinent expression: "Gestalt-pedagogy plays a very important role in my work. On the one hand, through my work as a teacher of Religion; on the other hand, through increasing the role of the school in society, where higher educative demands are being shifted from family to school. Thanks to Gestalt-pedagogy, the child is becoming a centre of interest." (Neuhold, 2003, p. 11) Gestalt-pedagogy, "does not stop at the rigid contents of education, but the development

of a student continues through the individuality and imagination of a child." (Hufnagl, 2003, p. 17). A student is viewed as a complex learning being, consisting of body, spirit and soul. There is a very nice description of Gestalt-pedagogy as an "effort to better understanding and the pedagogic improvement of things gained especially through Gestalt-therapy experiences." (Cebrat, 2003, p. 2). It is a pedagogy that is oriented towards a person. The teacher, though, retains his important role, becoming some kind of guardian or vigilant guide.

Conclusion

The Gestalt-pedagogy of Albert Höfer enriches pedagogic practice with a humanistic approach towards a student in context with the kerygma. It provides many creative possibilities for lesson structuring and the conveying the educative content; it also facilitates easier coping with the educative content; and it has a complex view on the development of a student.

Gestalt-pedagogy of Albert Höfer also brings new points in the formation of teachers, since Gestalt-pedagogy and spiritual formation is one of the facultative subjects which students of 'Teacher of first grade for primary school' can choose at the Pedagogic faculty of the Catholic University in Ruzomberok. The Gestalt-pedagogy of Albert Höfer introduces perspectives towards perception of Religious education more from a humanistic-creative view. In Slovakia it thus offers assistance and an alternative, since, as Prof. Höfer says: "When a student, based on a single situation from Jesus' life, starts to perceive the person of Jesus and his mission from a new point of view which is appealing to him, he will understand Jesus' message more than he would from a theological tractate."(Höfer, 1997, p. 16).

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Abstract:

The subject of this contribution is research of the further education of teachers in Gestalt pedagogy in a European context in general; it also focuses on the teaching of religious education. The research results from the author's study of the subject in Austria at the Institute of Integrative gestalt pedagogy and religious formation, under the leadership of its founder prof. Albert Höfer.

Keywords: Gestalt pedagogics, education of teachers, institutes of Gestalt pedagogics, principles

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Areas of scientific interest: Drama education, Innovative methods and forms focused on spiritual formation, Gestalt-pedagogy, Matrimoniology

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The Characteristics of Students who Become Bullies through School Bullying

1. Introduction

Due to information that has come from various sources, we are confronted with the fact that in relation to all walks of life, aggression, terror, violence, harassment, animosity, hostility, and all forms of social deviancy are showing increasing tendencies. Individual and communal reactions evoked by different events, presumed or actual happenings, wounds, fears, and several versions of tragedies manifest themselves. All these are getting more closely interwoven into the society, creating problems in more and more countries.

The anxious search for solutions are characterized by helplessness, uncertainty, fear, anxiety, which leads to a deterioration of social, community morale and to indisposition. It is particularly true when the indicated, negative behaviour patterns infiltrate human behaviour and personality without being understood.

Nowadays, in more and more countries, the analysis of the context of cause and effect of the phenomenon, the subject-matter knowledge, the expansion of knowledge, the encouragement of purposeful action against aggression, are becoming political and social aims. The need to improve social solidarity and responsibility, and for the development of national programs, which encourage action, have become urgent tasks. It seems to be that this subject matter covertly or overtly addresses the whole society.

According to his results, Olweus (1993) divides up bullies into two groups: active aggressors and passive aggressors. Active aggressors are

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the initiators of school bullying. They are those students who harass directly. There are some students who are the harassers' friends and they take part because of courage in the harassment, but at the same time they are devoured by fear, too, because they do not want to become victims. They are termed sympathizers in the literature.

According to Olweus (1993) active aggressors fancy themselves. They are neither shy nor uncertain. On the contrary, they have too much confidence. Active aggressors are often older and stronger than their victims, which likely strengthens their self-assessment. Therefore, they consider themselves tough, dominant, hearty. The demonstration of power and the domination over others' fates are their typical characteristics.

Typical active aggressors have a great need for power and control, therefore they appear to be rude and unfriendly (Busch, 1998).

According to Korte (1999), in general, active aggressors show less empathy with their victims and they do not feel guilty.

According to Ziegler and Ziegler (1997), active aggressors are impulsive, excitable, and inflammable, and they have low frustration tolerance: the smallest provocation may cause an escalated reaction in the students; it can be a glance, a gesture or simply someone was in the wrong place, at the wrong time.

Kassis (2003) concluded that bullies are not only violent more frequently, but that they also deploy social violence more often.

Margitics et al. (2010) demonstrated that those students with an antisocial temperament may become victims through school bullying, who can be characterized by high novelty seeking, low harm-avoidance and reward dependence. Seeking danger, defiant confrontation, non-conformism, rigidity are typical of this temperament type. So they do not become victims of school bullying. If they did not initiate violence, they will always be ready to become intervening participants, and they do not remain bystanders.

Contrary to Olweus (1993), Kassis (2003) believe that active aggressors judge themselves negatively; they do not accept themselves and they are not optimistic about their future. In terms of basic cognitive and

emotional behaviours (such as talent, confidence, tendency to depression and emotional control), the scored results were unstable.

According to Kassis' interpretation (2003), these results show that students who are particularly uncertain, tend to become aggressors because of their anger and frustration.

Dambach (2003) also believes that insults, failures and frustrations cause fear and anger in many active aggressors, and force them to hurt the weaker ones, which brings them momentary relief.

Examining the connection between the behaviour patterns of school bullying and character types, Margitics et al. (2010) found that the melancholic character type, who is characterized by low self-directness, cooperativeness, self-transcendence experience, tends to become a victim or bully through school bullying. This character type experiences few positive emotions; his/her emotions are mainly characterized by suffering, shame and hatred. In case of school bullying, besides melancholic character types, paranoid character types might also become bullies, who can be characterized by high self-directedness, selftranscendence and low cooperativeness. This character type is characterized by a limited ability to co-operate; he or she is suspicious, tenacious, and goal-oriented. If they are not bullies, they do not remain bystanders; they tend to become intervening participants.

According to Kathleen (2007), we need to see a greater differentiation in the typology of bullies than that of active and passive bullies because there can be differences between the confident bullies and the unconfident bullies (who reflect on their actions after doing it). But perhaps uncertain aggressors signify the status of sympathizers and followers.

According to Rost (1998), bullies show themselves as strong and confident but inside they feel fear.

In our research we wanted to find an answer to the question: what kind of temperament and character traits the students have, who become bullies through school bullying and what their typical emotional reactions are.

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2. Method

Participants

410 people (post-primary education at elementary schools), 205 girls and 205 boys, took part in the study.

Measures

The Examination of School Bullying:

The Questionnaire on School Bullying (Figula et al., 2008).

The Questionnaire on School Bullying, with its 70 'Hardly ever, Sometimes, Often, Almost always' options, reveals the phenomena of violence and harassment between pupils in everyday school life in terms of five dimensions. These dimensions are as follows:

- **Victim** (cognitive: apperception and assimilation of the insult; affective: emotional effect of the insult; physical reaction: bodily reaction to the insult; shortage of social support: refusal in the class community)
- **Bully** (physical aggression; verbal aggression; exclusion; positive profit: benefit of the assault)
- **Bystander** (keeping one's distance; fear)
- **Helper participant** (reconciling interposition; interposition appealing for help; affective: inner tension in view of the violence)
- **Intervening participant**

The Examination of Family Socialization:

We applied two different questionnaires.

The Hungarian adaptation of Goch's Family Socializational Questionnaire (Goch, 1998; Sallay & Dabert, 2002).

The questionnaire describes the following dimensions of family socialization:

- type of family atmosphere (rule-oriented family atmosphere, conflict-oriented family atmosphere),

➢ breeding target (breeding for autonomy, autonomy as a target of breeding, breeding for conformity, conformity as a breeding target)

➢ educational attitudes (consistent educational attitude, manipulative educational attitude, inconsistent educational attitude)

➢ educational style (supporting educational style, punishing educational style).

The Hungarian adaptation of the Parental Bonding Instrument (Tóth & Gervai, 1999).

The questionnaire has three main scales: love and care, overprotection, and restriction, applied separately to the mother and the father.

Survey of Temperament and Character:

The Hungarian version of Cloninger's Temperament and Character Inventory adapted by Rózsa and his colleagues (2005).

The main scales of the measure describe four temperament and three character dimensions:

➢ The temperament-scales are novelty seeking, harm avoidance, reward dependence, persistence

➢ The character-scales are self-directedness, cooperativeness, self-transcendence.

Examination of the Differentional Emotions:

The Hungarian version of Differentional Emotions Scale (Izard, 1971).

Izard (1971) developed the Differentional Emotions Scale in order to differentiate between the basic emotions. The inventory is suitable for examining the ability of experiencing certain basic emotions as a permanent characteristic feature. With the help of a frequency scale it examines how often the basic emotions appear. Differentional Emotions Scale consists of a scale identifying ten basic emotions. The questionnaire describes the following fundamental emotions:

➢ Trait of Interest

➢ Trait of Enjoyment

➢ Trait of Surprise

➢ Trait of Distress

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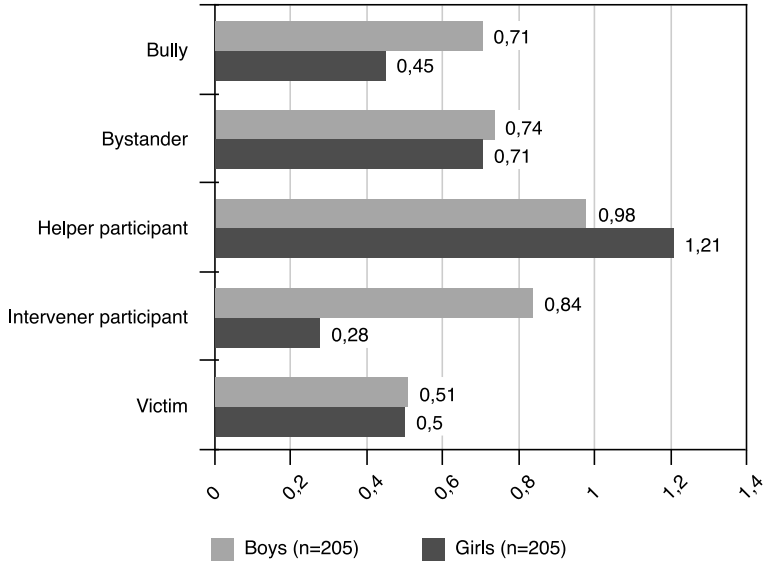
- Trait of Anger
- Trait of Disgust
- Trait of Contempt
- Trait of Fear
- Trait of Shame
- Trait of Guilt
- Trait of Anxiety

3. Results

The Structure of Behaviour Patterns on School Bullying

Comparing the scales and subscales of the Questionnaire on School Bullying with each other, we calculated the average of the values to a given statement within the tested scales and subscales. Figure 1 shows the structure of behaviour patterns in connection with school bullying.

Figure 1. The structure of behaviour patterns in connection with school bullying

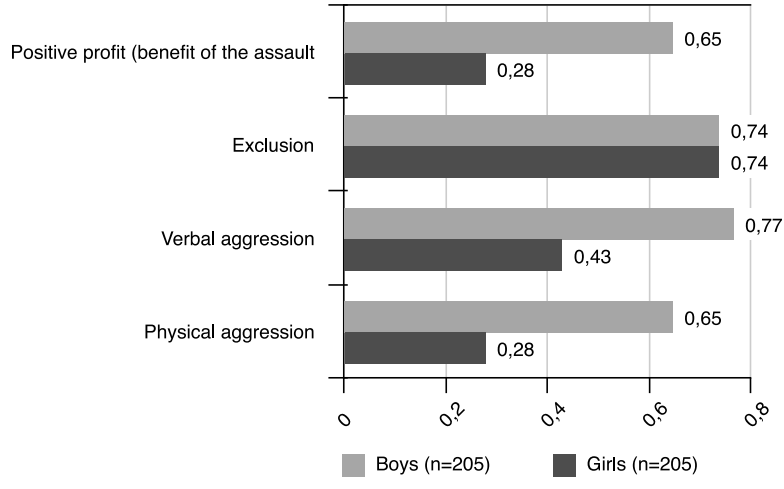


The figure shows that there are differences between girls and the boys in the structure of behaviour patterns in connection with school bullying. In this age group, the helper participant was most typical of boys; the intervener participant was the next typical. It was followed by bystander and bullying behaviour patterns. Victim behaviour pattern was the least typical of boys.

In case of the girls, from the behaviour patterns of school bullying, the helper participant was the most dominant and it was followed by the bystander behaviour pattern. Next were the victim and bullying behaviour patterns. The intervener participant was the least typical of girls.

We also examined the components (subscales) of a bullying behaviour pattern in connection with school bullying. Figure 2 shows the structure of the components of a bullying behaviour pattern.

Figure 2. The structure of the components of bullying behaviour pattern



In this age group there was a difference between the boys and the girls in the structure of a bullying behaviour pattern. The aggressive behaviour patterns of the boys were characterized by verbal aggression and

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a willingness to exclude others; it was followed by positive profit (benefit from the assault). Physical aggression was the least typical of them.

In the case of girls, the most dominant component of the bullying behaviour pattern was exclusion, which was followed by verbal aggression. Positive profit (benefit from the assault) and physical aggression were not very typical of girls.

The connection between a bullying behaviour pattern and the parental educational dimensions

The structure of parental educational dimensions

With the help of second-rate factor analysis (varimax rotation) we examined the patterns of parental educational dimensions, their underlying structure (during the study – according to general practice – not less than 0,4 (factor gravity), rotated factors were taken into account (Chart 1).

Chart 1. Second Rate Factor Analysis for the Dimensions of Parental Nurturing (l>0.4)

Dimensions of Parental Bonding	Factor 1	Factor 2	Factor 3	Factor 4
Rule oriented family atmosphere	0,632			
Conflict oriented family atmosphere		0,741		
Manipulative educational attitude		0,678		
Inconsistent educational attitude		0,742		
Consistent educational attitude	0,654			
Punishing educational style	0,756			
Supportive educational style			-0,474	
Breeding for conformity	0,749			
Breeding for autonomy			-0,624	
Maternal affection-care		-0,578		
Paternal affection-care		-0,658		
Maternal overprotection				0,853
Paternal overprotection				0,84438
Maternal restriction			0,887	
Paternal restriction			0,891	

The analysis arranged the parental educational dimension into four factors, which together explained 65,2% of the variance.

The first factor, which explains 24,8% of the variance, demonstrates a rule oriented family atmosphere, which is characterized by conformity as a parental educational goal, and it is associated with a punishing educational style and consistent educational attitude.

The second factor, which explains 20,3% of the variance, demonstrates a conflict oriented family atmosphere, which is characterized by conflict oriented family atmosphere, the manipulative and inconsistent educational attitude of the parents and a lack of love and care.

The third factor, which explains 11,5% of the variance, demonstrates restrictional parental treatment, which is characterized by the lack of parental support and breeding for autonomy

The fourth factor, which explains 7,9% of the variance, describes parental overprotection.

The connection between a bullying behaviour pattern and parental educational effects were revealed by linear regression analysis (stepwise method: the dependant variable was the behaviour patterns of school bullying, parental educational effects were used as a predictor). Chart 2 shows the results of linear regression analysis in case of bullying behaviour pattern.

Chart 2. The interrelationship between Parental Rearing Effects with the Behaviour Patterns of the Bully (approved models; p<0.05)

Predictor	B	t	P<
Women: $F_{totál} = 16,489$; df = 3/205; p < 0,000			
Maternal affection-care	-0,198	-3,3456	0,000
Rule oriented family atmosphere	0,169	3,087	0,002
Maternal overprotection	0,149	2,274	0,022
Men: $F_{totál} = 19,418$; df = 3/205; p < 0,000			
Conflict oriented family atmosphere	0,241	3,998	0,000
Maternal overprotection	0,199	3,098	0,001
Paternal affection-care	-0,178	-3,147	0,006

In case of the girls, a bullying behaviour pattern that stemmed from parental educational effects, showed a significant negative connection with maternal affection-care and a positive one with maternal overprotection and a rule oriented family atmosphere, which together explained 13,1% of the variance of bullying behaviour pattern.

In case of the boys, a bullying behaviour pattern that stemmed from the parental educational effects, showed a significant positive connection with a conflict oriented family atmosphere, maternal overprotection and a negative one with paternal affection-care, which together explained 17,6% of the variance of the bullying behaviour pattern.

The connection between the bullying behaviour pattern and the temperament and character traits

The connection between the bullying behaviour pattern and temperament and character traits were revealed by linear regression analysis (stepwise method: dependant variable was the behaviour patterns of school bullying, independent variables were the certain temperament and character traits and their constituent personality traits. Chart 3 shows the results of linear regression analysis in case of a bullying behaviour pattern.

Chart 3. Correlation between Temperament and Character Features and the Behaviour Pattern of the Bully (approved models; p<0.05)

Predictor	B	t	P<
Women: $F_{totál} = 17,568$; df = 4/205; p<0,000			
Novelty seeking	0,259	3,912	0,000
Social acceptance	-0,265	-3,989	0,000
Transpersonal identity	-0,159	-2,485	0,010
Empathy	-0,179	-2,589	0,011
Men: $F_{totál} = 20,789$; df = 3/205; p < 0,000			
Novelty seeking	0,307	3,404	0,000
Cooperativeness	-0,289	-2,918	0,000
Transpersonal identity	-0,152	-2,126	0,041

In case of the girls, a bullying behaviour pattern that stemmed from the temperament and character traits and their constituent personality traits, showed a significant, negative connection with social acceptance, transpersonal identity, empathy and a positive one with novelty seeking, which together explained 25,8% of the variance of bullying behaviour pattern.

In case of the boys, a bullying behaviour pattern that stemmed from the temperament of character traits and their constituent personality traits, showed a significant, negative connection with cooperativeness, transpersonal identity and a positive one with novelty seeking, which together explained 11,9% of the variance of bullying behaviour pattern.

The connection between the bullying behaviour pattern and basic emotions

The connection between the bullying behaviour pattern of school bullying and the basic emotions were revealed by linear regression analysis (stepwise method: dependant variable was the bullying behaviour pattern, basic emotions were used as predictors). Chart 4 shows the regression analysis of the basic emotions according to the components of a bullying behaviour pattern.

Chart 4. Relationship of Fundamental Emotions with the Behaviour Pattern of the Bully (approved models; p<0.05)

Predictor	B	t	P<
Women: $F_{totál} = 28,712$; df = 2/205; p < 0,000			
Disgust	0,289	5,125	0,000
Anger	0,125	2,245	0,022
Men: $F_{totál} = 19,512$; df = 4/205; p < 0,000			
Anger	0,218	3,546	0,000
Guilt	-0,196	-3,745	0,000
Disgust	0,221	3,445	0,000
Contempt	0,159	2,401	0,006

In case of the girls, a bullying behaviour pattern that stemmed from the basic emotions, showed a significant, positive connection with disgust and anger, which together explained 12,6% of the variance.

In case of the boys, a bullying behaviour pattern that stemmed from basic emotions, also showed a significant, positive connection with disgust, anger, as well as contempt and a negative one with guilt, which together explained 20,6% of the variance.

These results indicate that the students who become bullies – without reference to gender differences – feel anger and disgust, which is associated with contempt and a lack of guilt in the case of boys.

We also examined that what the connection is between the certain components of a bullying behaviour pattern (physical aggression, verbal aggression, exclusion, positive profit (benefit from the assault)) and the basic emotions (linear regression, stepwise method: dependant variable are the components of a bullying behaviour pattern, basic emotions were used as predictors). Chart 5 shows the revealed connections with this method.

Chart 5. Regression Analysis of Fundamental Emotions versus the Individual Components of the Bully Behaviour Pattern (approved models; p<0.05)

Predictor	B	t	P<
PHYSICAL AGGRESSION			
Women: $F_{totál}$ =9,556; df=2/205; p<0,000			
Anger	0,228	4,301	0,000
Disgust	0,138	2,425	0,011
Men: $F_{totál}$ =18,124; df=2/205; p<0,000			
Anger	0,321	5,856	0,000
Guilt	-0,191	-3,571	0,000
VERBAL AGGRESSION			
Women: $F_{totál}$ =36,532; df=1/205; p<0,000			
Disgust	0,311	6,876	0,000

Men: $F_{totál}$ = 17,235; df = 3/205; p < 0,000			
Anger	0,264	4,125	0,000
Guilt	-0,185	-3,348	0,000
Disgust	0,189	2,987	0,003
EXCLUSION			
Women: $F_{totál}$ = 37,458; df = 1/205; p < 0,000			
Disgust	0,293	5,954	0,000
Men: $F_{totál}$ =18,127; df=2/205; p<0,000			
Contempt	0,195	3,354	0,000
Disgust	0,187	3,148	0,001
POSITIVE PROFIT (BENEFIT OF THE ASSAULT)			
Women: $F_{totál}$ = 10,157; df = 3/205; p < 0,000			
Anger	0,154	2,946	0,003
Contempt	0,140	2,458	0,008
Shame	-0,134	-2,657	0,009
Men: $F_{totál}$ = 17,251; df = 2/205; p < 0,000			
Disgust	0,278	4,589	0,000
Anger	0,218	4,018	0,000
Contempt	0,228	3,812	0,000

In case of the girls, the physical aggression component of a bullying behaviour pattern that stemmed from the basic emotions, showed a significant, positive connection with disgust and anger, which together explained 6,2% of the variance.

In case of the boys, the physical aggression component of a bullying behaviour pattern that stemmed from the basic emotions, showed a significant, positive connection with anger and a negative one with guilt, which together explained 14,2% of the variance.

In case of the girls, the verbal aggression component of a bullying behaviour pattern that stemmed from the basic emotions, showed a significant, positive connection with disgust, which together explained 10,2% of the variance.

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In case of the boys, the verbal aggression component of a bullying behaviour pattern that stemmed from the basic emotions, showed a significant, positive connection with anger and disgust and a negative one with guilt, which together explained 14,6% of the variance.

In case of the girls, the exclusion component of a bullying behaviour pattern that stemmed from the basic emotions, showed a significant, positive connection with disgust, which together explained 7,6% of the variance.

In case of the boys, the exclusion component of a bullying behaviour pattern that stemmed from the basic emotions, showed a significant, positive connection with disgust as well as contempt, which together explained 11,2% of the variance.

In case of the girls, the positive profit component of a bullying behaviour pattern that stemmed from the basic emotions, showed a significant, positive connection with anger and contempt and a negative one with shame, which together explained 8,5% of the variance.

In the case of the boys, the positive profit component of bullying behaviour pattern, from the basic emotions, showed a significant, positive connection with disgust, anger and contempt, which together explained 19,6% of the variance.

4. Discussion

In our research we wanted to find an answer to the question: what kind of temperament and character traits the students have, who become bullies through school bullying and what their typical emotional reactions are.

In terms of the background effects of family socialization, our research results show that parental overprotection – without reference to gender differences – may cause the appearance of the victim behaviour pattern of school bullying, from the components of which maternal overprotection is typical of the girls, maternal and paternal overprotection are typical of both girls and boys.

The connection among the further parental educational effects is different between the boys and the girls. In the case of boys, a bullying behaviour pattern is present in a conflict oriented family atmosphere.

Within this, the effect of a conflict oriented family atmosphere and the lack of maternal love and care is strong, which is associated with manipulative and inconsistent educational attitudes. In the case of the girls, parental love and care, especially a lack of maternal love and care, was closely related with a bullying behaviour pattern.

In case of the girls, the appearance of a bullying behaviour pattern can be caused by rule oriented family atmosphere; in case of the boys, it can be caused by consistent educational attitudes.

When examining the temperament and character traits, we found that the novelty seeking temperament trait and a lack of cooperativeness, self-detachment character traits can be in the background of becoming bullies (without reference to gender differences).

Those people who seek novelty are impulsive, like to discover new things, they are excitable and can be easily provoked to fight or escape. If these temperament traits are associated with a lack of cooperativeness (social intolerance, vindictiveness, lack of interest in other people) and controlling behaviour (self-detachment) then it is likely that the students become bullies through school bullying.

We found that novelty seeking was the most typical temperament trait of the girls. Their most typical character traits were social intolerance, vindictiveness and self-detachment. Novelty seeking was also the most typical temperament trait of the boys who became bullies. Lack of cooperativeness and self-detachment were also their most typical character traits.

These results confirm Ziegler and Ziegler's (1997) results, who found that bullies are impulsive, excitable and inflammable, which is connected with the novelty seeking temperament trait. Korte's research results (1999) can be explained by the lack of cooperativeness, according to which, in general, active aggressors show less empathy with their victims and they do not feel guilty.

Our research results, which examine emotions, show that students, who become bullies through school bullying – without reference to

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gender differences – primarily feel anger and disgust, which force them to take emotion driven actions. They direct anger in an aggressive way towards their peers. Their performance orientation can be increased. Aside from the above mentioned emotions, anger, disgust as well as contempt are also typical of the boys who become bullies and they do not feel guilty.

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Abstract:

In our research we wanted to find an answer to the question: what kind of temperament and character traits do students have who become bullies through school bullying, and what their typical emotional reactions are.

In the study 410 children (post-primary education at elementary schools), 205 girls and 205 boys took part. In our research we used the following instruments: the Questionnaire on School Bullying, the Hungarian adaptation of Goch's Family Socializational, the Hungarian adaptation of the Parental Bonding Instrument, the Hungarian version of Cloninger's Temperament and Character Inventory, and the Hungarian version of Differentional Emotions Scale. The results of our research show that increased maternal overprotection as well as a rule or conflict oriented family atmosphere stand in the family socialization background of the students who become bullies through school bullying. The personality of bullies is characterized by a novelty seeking temperament, which is associated with an immature character. The emotions of bullies are characterized by feelings of anger and disgust, which force them to take emotion driven actions. They direct anger in an aggressive way towards their peers. The results of the research also revealed the major gender differences in the examined fields/areas.

Keywords: school bullying, socialization, typical emotional reactions

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The Importance of Mathematical Difficulties and Failures

Maths together with the Polish language or science is one of the primary areas of a human's education. Its importance within education is not equal to the level of difficulties in learning. An integrated part of the process of learning maths is the ability to overcome difficulties on one's own. Following the point of view of Marta Bogdanowicz, the difficulties experienced while learning widely depend on various factors: for example, mental disorder, injuries of sense and movement organs, neurological diseases and emotional disorder. In a restricted sense, this term is applied to children who do not succeed in learning except in propitious circumstances (Pilch and others, 2005, p. 816).

We can talk about difficulties when we observe a big difference between the demands made by an educational institution, and the results achieved by a child. Ludwik Bandura (1970, p. 27–138) introduced a classification of difficulties:

Difficulties in acquiring knowledge

A teacher who prepares a concept for a lesson should apply proper methods, taking into consideration not only the subject, but also the individual needs of pupils. It mostly happens that during a class it is possible to apply not only one method but two, three or even more; they can be intermingled. A domain of contemporary education should be the problematic elaborations of the subject; of course, these methods allow for the search for knowledge through everyday experiences, basing on internal experiences and observation, then on using knowledge in

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practice. For the good of the child, while preparing him or her for a proper and reasonable perception of information, it is not correct to follow trends and proclaimed requirements. This is a moment when one should decide to come back to a traditional model of teaching, which means informative methods.

Moreover, the sense of acquiring knowledge is inherent in the proper assigning of difficulties, beginning from the least and gradually moving towards larger ones.

Difficulties in acquiring skills

In the process of learning, a child requires not only knowledge but also some skills. There is a strict connection between skills and knowledge; they are closely correlated. It is not possible to acquire knowledge without skills, and possessing skills demands some knowledge.

Difficulties in memorizing

We often face difficulties with memorizing; they are strictly connected with fixing systematically and applying some parts of material. Learning skills acquired by pupils will help them to actualize forgotten gaps.

Difficulties in feeling confident

There is some emotional base connected with the process of learning; it influences the achieved results. A child who has low achievements in learning feels worse; he or she suffers from a lack of confidence; he or she become more convinced about its weaker intellectual abilities. A children's status among schoolmates is low; they mostly isolate this child from the group.

Difficulties in the practical use of knowledge

The child that efficiently exists in the surrounding environment is not only a "walking encyclopaedia" highly equipped with theoretical knowledge. This is also a small human being who is able to apply possessed knowledge in practice, whilst also acquiring more knowledge.

Taking into account the specificity such a subject as maths, initial difficulties are noticed in the first years of a child's life when it has problems: for example, while building from blocks or drawing. The next symptoms are recognized at the pre-school age, while pointing to the right and left sides, distinguishing and remembering numbers, arranging numbers in decreasing and increasing order, both memory and with fingers counting, identifying numbers with written symbols (for example, a child can count but it can't read numbers), reading and understanding mathematical symbols (plus, minus, etc.). At an older age, a child cannot copy a sentence into a notebook correctly, nor do a test on its own; the world of figures and other mathematical symbols seem to be witchcraft. We must distinguish manual difficulties from those that are specific. There is a group of children who, apart from trying at the proper time, are not able to acquire the knowledge and skills included in the syllabus that is compulsory at a certain phase of education.

It happens that those children get positive marks but they are not equal to the extension put in the process of learning. Those poor effects are the product of hard work, for both children and adults, parents and teachers. "Such cases are said to be difficulties with learning maths." (Gruszczyk-Kolczyńska, 1992, p. 6). This phenomenon is strictly connected with idea of maturity in a class system proposed by the school.

The range of maturity to learn maths involves:

- a child's counting,
- emotional maturity,
- operating thinking at concrete level,
- understanding the sense of length, liquid and weight measurements,
- the ability to separate from counting on fingers and use graphic and symbolic representatives in counting and calculating;
- the ability to coordinate perceptive and manual activeness (Gruszczyk-Kolczyńska, 1992, p. 18).

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Neglected natural or specific difficulties are transformed into failures. Following Jerzy Nowik, we can find the causes of mathematical failures among children in early-school education in three areas:

- family and social environment at a pupil;
- school education;
- inside a pupil with its abilities, sensitivity and psychic (Nowik, 2009, p. 182).

The environment in which a child grows and learns has a significant influence on the later process of mathematical education and its effects. The essential condition to fulfil all a child's needs and proper development is a healthy family structure, a suitable internal atmosphere, as well as socio-economic conditions. Examining the reasons from within a child's home, it is essential to focus on the destruction of family structure, the parents' improper attitude towards a child and a lack of interest in its education; moreover, not assuring the proper conditions for education and participating in the lessons, the low cultural and intellectual level of parents, lack of understanding, bad patterns and also poor living and material conditions (Przetacznikowa, Włodarski, 1980, p. 280–284; Wojda, 2001). Very often a child is threatened at home by maths, by parents, grandparents and older siblings or friends, just before going to school. In this way, a child is not shaped in a proper direction, and does not respect maths, but fears it (Nowik, 2009, p. 184). Apart from negative patterns and conditions, we should mention those that seem positive, resulting from love towards a child, but which are in fact negative. Pampering and doing something for a child - undertaking its activities. This attitude on the part of relatives makes it impossible to prepare children for life and duties, which means children cannot follow discipline and school requirements. Children will back out instead of undertaking any effort to overcome difficulties, what can be visible when solving mathematical tasks.

The second, important factor of failures within mathematical education is didactic activity. Some teachers can see the sources of school failures in the bad work of a teacher, especially:

- a limit to authorized teaching, not appreciating the method of teaching based on independent thinking and experimenting;
- an anomaly in the organization of work during a lesson;
- applying improper methods of teaching, not assuring the possibility of independent discovery, the experience of new things and abilities within mathematical education;
- a lack of respect for the rule of gradually defined tasks;
- poor knowledge used in practise;
- poor control and assessment of acquired skills and knowledge;
- a not well selected textbook;
- lack of knowledge about pupils;
- lack of care for pupils showing mathematical problems;
- an improper atmosphere during a lesson and teacher's personality (Przetacznikowa, Włodarski, 1980, p. 184–191; Łuczak, 2000, p. 37–38; Kuchta, 2001).

To these groups of causes belong not only the harmful activities of a teacher, but also some independent factors, which influence some actions in the process of teaching. These are: pupils' overworking with too many duties connected with carrying out of the school syllabus, too many pupils in a class, lack of basic teaching tools, and too extended bureaucracy. A teacher in their everyday didactic work is not able to devote much notice to every child and treat them individually.

The third area is determined by numerous factors. One of the most essential is, as mentioned above, is a lack of maturity to learn maths in school conditions. The next one is a student's poor health, long-lasting illnesses that lead to a high level of absence from maths classes which results in backlays and gaps in knowledge. When this deficiency is not revised, it becomes bigger and bigger and causes more difficulties among children. Poor health decreases a child's general possibility to work so it can memorize and remember less; he or she then easily becomes bored or tired and unwilling to work. To this list we should enclose eyesight, hearing and movement disorders. Weak eyesight can cause improper task deciphering, inaccurate copying and then it

can lead to error reinforcement. Disturbance of visual analysis and synthesis can cause the mistaking of mathematical figures and signs with those that have a graphical similarity, not the proper space of the material on a sheet of paper, making mistakes while writing or deciphering fractions, problems with recognizing and understanding information from graphs or diagrams, failures in learning geometry, problems with drawing and deciphering the function graphs, an upper and lower index that is misleading. Weakened hearing causes serious results too, because not hearing words leads to gaps in knowledge, an incorrect register of sentence that has been heard and mathematical operations, not being able to understand longer verbal orders, problems when answering the orders and verbally asked questions. A child's reduced manual skill makes it difficult or even impossible to perform charts, pictures, trees or graphs, which are very essential in mathematical education (Bandura, 1970, p. 17–21; Pawlik, 2011, p. 11–12). The next significant determinant that causes large difficulties in the process of learning maths is lateralization; this means turning and rearranging of figures (letters) while writing, missing and misleading figures (letters) while deciphering, the difficulty in mastering ideas and describing spatial proportions, less graphologic-motoric effectiveness (a slower pace of work, reduced precision). Poor techniques of reading and understanding the read texts negatively influence the understanding of the contents of tasks, understanding the sense of read mathematical rules and thus applying them. Moreover, the pace of work, with exercises that need to be read, decreases. Graphologic -motoric disorders contribute to mathematical failures; they cause problems with deciphering written orders and problems with contents, with writing down mathematical signs and symbols, with written calculation because figures have been written in an improper place, and with fast writing which leads to reduced time for calculations (Pawlik, 2011, p. 12).

The process of failure formation is not short, it develops through four phases of development which has been described by Jan Konopnicki (1996, p. 18–20) as follows:

Phase I

When the first gaps in mathematical knowledge appear among children, adults do not them. They rather think that it is only temporary problem and the child will pick them up when they do exercises. Then, when a child does not cope with calculating, adding or subtracting the objects only when it touches them, he or she cannot orientate in space very well, he or she cannot focus on the activity that is being undertaken, etc., then the first signs of disappointment with learning appear, which is a lack of willingness to go to kindergarten, then to school. A child feels a lack of confidence and perceives himself or herself to be worse than the others.

Phase II

This is rather a school period. A child shows a serious lack of knowledge; he or she is able to cover this up and can be considered to be a good pupil. He or she wants to deceive the teachers and parents, copies homework, asks neighbours for help during tests or cheats. A child does this without any consideration, automatically, without a willingness to understand or analyse the problem and understand the solution.

Phase III

At this phase both parents, teachers and even schoolmates can remark on the problem because bad marks are given. Then the first attempts to help are undertaken in order to counteract the mathematical difficulties: doing homework with a child, additional classes to pick up the material, private lessons. Because of fear and terror, a child shows characteristic psychological symptoms: shyness, aggressive behaviour during a lesson, consistently fails to do homework, passive participation in classes, aversion to maths that borders on hatred, and the consequent avoidance of maths (headaches, stomach aches, faints, playing truant, skipping lessons, etc.).

Phase IV

The final phase is the official statement about a child's failure at school and the awarding of a negative grade, which means repetition of

the school years. It causes aversion among most pupils to undertake any trials to understand mathematical problems, limits the interest in the subject, cause various interiority complexes, it can even lead to inhibiting the, until this point, normal mental development of the child.

How can we help a child to prevent difficulties and failures? The issue of development assistance is certainly a sensual organized process of picking up and handing down knowledge, simultaneously with taking into consideration a child's personal experiences, which are the elements needed to build mathematical knowledge. At the nursery phase of development, before a child goes to kindergarten, parents are the ideal teachers-therapists.

The role of parents at the early phase in overcoming mathematical difficulties and shaping mathematical ideas is emphasized by Colin Rose and Gordon Dryden. According to them, parents are "the first and most important teachers of their child. They, when playing together, show examples of problem solving and patterns to imitate. The more often a child is faced with different problems while playing, the better he or she will cope with them in the future. The more we encourage a child to think and make conclusions, the better it will be able to understand the surrounding environment. Thus, let's encourage our child to work with mathematical accuracy; it will start to understand that the world is ruled by the certain laws, steady law and order will help to live normally. The key to success is everyday play, during which a curious child enters into the world of logical connections between formulas and colours, a distinction of sequences and the event results interpretation" (Rose, Dryden, 2009a, p. 9).

How can a child play in order to develop his or her mathematical abilities efficiently and which will allow them to overcome difficulties?

1. State the common relationships between objects, pointing also at their practical appliance.
2. Compare the sets of objects according to their number, teach your child to estimate the quantity from "the first sight"; for example, there is a little and there is a lot of.

3. Show and explain the sense of mathematical operations when a child does them in concrete situations.
4. Put different patterns from the constant number of elements (Jagiełło, Klim-Klimaszewska, 2011, p. 114–115).

The authors in the publications suggest a lot of different ideas, but they mostly concentrate on discovering a real life through all senses in a pleasant atmosphere. They express this in the words: "It is necessary to emphasise that even all games which we propose, will not replace for the child the time spent together with his or her mother in the kitchen, shop, laundry, bank – take your child with you if only it is possible." (Rose, Dryden, 2009b, p. 103).

At the further level of education, teachers become parents' partners. Teachers continue the journey around the mysterious world of maths begun by the parents. They shape ideas and mathematical abilities, so that they could be proper for child's way of thinking, understanding and learning-from manipulation with concretes, through verbalisation and gestures, drawing symbols. It is not possible to teach a child how to count without mathematical operations, only by talking about numbers, in what order they appear, or how to add or subtract. Even a very colourful picture cannot help in such a case. Children should take into their hands an object of their choice, and whichever they like (blocks, chestnuts, buttons) and manipulate them: for example they can put some buttons on the floor and count them, next a teacher will add two buttons and children will count the total; afterwards they put away five buttons into a box and count the rest. After such a series of tasks, it is possible to undertake exercises based on pictures and symbols. The chosen methods of working and teaching tools should be adjusted to children's possibilities and needs.

To overcome difficulties connected with imparting and acquiring mathematical knowledge, it is worth moving away from traditional methods and common schemes and introduce some measurable improvements. One of them are innovative methods, forms of working with a child, as well as didactic devices. They are especially important when

teaching children with special educational needs to achieve better didactive and educational results.

The innovative methods include:

- The teaching method developed by Glenn Doman, assisting logical-mathematical thinking from the first moment of a human's life. Glenn Doman proposes a first set of cards for newborn babies with dimension 38 cm x 38 cm with spots on them, painted in red, with a diameter about from 3.8 cm to 4 cm. Red is the colour perceived most easily by retina receptors. It is possible to apply black or colourful signs among children at the age of 9 months, after 1 year the colour of the sign is not important. The educational process begins from a card with one spot; it is essential to keep the card motionlessly at a distance of 50 cm and repeat 'one', then put the card aside after one or two seconds. Then, analogically, the cards with two, three etc. spots are shown. At the next stage, it is essential to introduce simple, two-degree rules concerning the adding of two elements, the result, product and quotient. When children are acquainted with numbers from 1 to 20, instead of a simple session with equation, it is necessary to apply sessions with both equation and inequation. In this way, step by step, an adult introduces a child to the world of mathematics. The following exercises are accompanied by asking questions and searching for the answers. This ability is a very essential link for the process of thinking. Children, from the very beginning, are able to gain enough confidence and efficiency to formulate and ask questions.
- Maria Montessori – correlation of contents, a characteristic of pedagogy developed by Maria Montessori, is visible within mathematical education. A child working earlier, for example, with materials for senses development is able to prepare for getting to know the rules in the world of mathematics on their own. Practical experience in terms of comparison of size and volume of the objects makes it easier to learn the basic mathematical rules,

although children often are not aware of this phenomenon. Various Montessorian developing materials and other didactic devices enable children to classify, compare, learn numbers, the decimal system, geometrical figures, techniques of efficient calculations, and to perform simple mathematical operations.

- Rudolf Steiner – the mathematical education developed by Waldorf schools is comprised of learning about numbers, counting and two basic mathematical operations: adding and subtracting. The syllabus of mathematical education concerns stories involving numbers, e.g. Three small pigs and activity exercises, which help in mathematical operations, like stamping, clapping, throwing with sacks with beans on to certain patterns. Education concerning numbers begins with information that the most important number is one, the other numbers are only its sections. Children learn that a man is a unit but refer to other numbers: 2 – because he or she has a pair of eyes, ears, arms and legs, 3 – as his or her arm, leg finger and all the body (head, trunk, limbs). It is possible to find the number 4 in the general number of limbs, in the number of legs among animals; 5 we can find in the number of fingers or in the body of a human being with arms and legs standing astride. It is important for children to seek for the place where a certain number is hidden, like the phenomenon of the number 6, which is connected with, living beings or objects: the number of legs of an insect, the number of petals in a lily, or in a structure of a snow flake. The introduction of a child into the world of numbers happens through motion and rhythm connected in enumeration and the number sequence.

Innovative forms include among other things:

- Theatre through reference to mathematical contents
- Film in a mathematical plot e.g. Pi and Sigma
- Trips aiming to search mathematical contents in nature
- Meeting with experts within mathematics, e.g. a meeting with a master in chess, a master in composing of Rubik Cube.

There is an example set of didactic tools[1] that help the process of teaching maths on corrective-compensation classes:

1. Games with a book of Educational System PUS (Made in EPIDEIXIS). A handy closed plastic box in which there are 12 numbered blocks. The Control Set is always used with the books from the PUS series, because the numbers on the blocks are related to the numbers in the books. 32 or 24-paged thematic elaborations (maths, the Polish language, science, foreign languages), adapted to age and perceptive abilities of a child. Due to a clear and amusing form, they stimulate development of basic intellectual skills; they make a child works with PUS willingly and on its own. We open the Control Set and shift all blocks to the upper part so that all numbers on the blocks can be visible. We open a certain book, become acquainted with the order and start doing the exercises. After doing all the tasks, the blocks are in a lower part of the Control Set, in an order resulting from the given answers. We close the Control Set, turn it over and open it again. Now we see, arranged from the blocks, a three-coloured, regular pattern. We compare this with the model that existed in the book while doing the exercises. If the patterns are the same, all tasks were done correctly. If they are different, it means, we have made a mistake.

2. Games with Logico (Made in MAC) Logico is a series of books about various topics with a special board with colourful, buttons that can be pressed, on which children mark the answers and then, on their own, verify their correctness. Logico is the best didactic tool for individual work with a child discovering and developing their abilities; it stimulates a child's interest.

3. Mosaic in XXL Size (Made in EPIDEIXS) A didactic mosaic is a valuable tool that can be used for a child's development. A mosaic in

[1] The set prepared by the second year students of Education children's age, Universytet Przyrodniczo-humanistyczny A.O. Jóźwiak and A. Matejek.

XXL size contains 250 wooden elements in different colours: red, green, blue, white, orange and yellow; it is packed inside an aesthetic and hard wooden box. The mosaic helps children develop: manual skills, creative thinking, sight coordination, perception concentration, resistance, discipline, and counting. Learning through play with the mosaic takes place through imitating and colouring. This game teaches children construction and dexterity. An example:

a) Butterfly
- Compose the butterfly from geometrical figures according to the pattern.
- Count the number of elements within the butterfly's right wing.
- Count the number of elements that comprise the butterfly's left wing.
- Count the elements that comprise both wings.
- Count the number of red figures in the picture.
- Count the number of green triangles.
- Count the number of figures which form the butterfly. Every geometrical figure should be counted separately.

b) Elements counting
- How many red and yellow elements are there all together?
- Which elements are there more of, orange or yellow ones?

4. Sticks to count-countmen (for example, a manual game Stick Insect, Made in Granna). A tool for counting, sorting, measuring, adding and subtracting. An example:
- How many sticks do compose…
- How many sticks will you compose a triangle from?
- How many sticks will you compose a square from?
- How many sticks will you compose a rectangle from?

5. Mosaic from colourful coral beads! For example MOZAIC 300 elements AMUSES AND TEACHES (Made in Smily Play). The game-that is composed of various compositions develops manual skills, stimulates imagination and creative thinking. An example:

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– Zosia has put the number 6 on the board. Kamil has put the number 10 on the board. How many coral beads did Kamil use, and how many did Zosia?
– Compose operation 1+7 from colourful coral beads on the beads and give the results.

6. A dice game. An example: Throw the dice. Count the number of spots on the dice. Then select to it a dice with Arabic numerals and fit the Arabic numeral to the number of spots thrown on the dice. Select a dice with Arabic numerals and fit the Arabic numeral to the number of spots on the dice.

7. Colourful numbers. Grandma has bought 10 apples to bake an apple-pie. Her granddaughter has eaten 5 apples. How many apples should grandma buy? Do the calculation by applying colourful numbers.

8. Textual task

a) By a feeding tray there were 3 sparrows jumping. Suddenly a flock of coalmice appeared. Together by the feeding tray there were 10 birds. How many coalmice appeared? Do the calculation with using kidney-beans.
b) Christopher had 8 candies in a sack; the children ate 5 candies. How many candies were left? Do the calculation with using kidney-beans.

9. Exercises with an abacus

a) Ala has bought 6 apples and 4 pears. How many pieces of fruit has Ala got? Do the calculation using an abacus.
b) Monica has received from her mother 8 lolly-pops, 2 of which she has lost. How many lolly-pops are left? Do the calculation using an abacus.

10. Magical number 7.

Do you know the magical number 7?

– This is one (we stamp our right foot)
– This is two (we stamp our left foot)
– This is three (we jump)
– This is four (we clap our hands)
– This is five (we move our arms that are bent at the elbows)
– This is six (we touch our nose)
– This is seven (we touch our head and move it towards the right and left.

11. Colourful magnets. A lady-bird has got 3 spots on the right wing and 5 spots on the left one. How many spots has the lady-bird got? Do the calculation on the board with using colourful magnets.

12. A numbered umbrella using animation shawl. The children stand around the animation shawl, they hold it. The children perform the teacher's orders: Under the shawl enter the children who:

– have the number 4 on their T-shirts. The children go under the shawl, dance and after a while come back to their place.
– have the number 3 on their T-shirts. The game is repeated in the same way as the first time.
– have the number which is bigger than 5.
– have the number which is less than 3.
– have the number which is the total of 1 and 2.

13. Funny maths-game "The first discovery". 5–6 years old. (Made in the Young Digital Planet). The aim of the programme is good fun combined with learning. During work with the programme a child gains the skill in calculating, adding and subtracting numbers, and putting elements in order. Additionally, while answering the questions or orders, a child develops such skills like: comparison of numerical collection and time deciphering; he or she gets to know basic geometrical figures, groups items according to a distinguished feature, forms collections of objects fulfilling certain conditions and estimates the numbers. Hundreds of interactive mathematical exercises shape special imagination, develop

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perception and teach children to generalise. An essential feature of the programme is that an adult can follow the progress in learning and is able to help a child in a vocal form.

Conclusions

Mathematics causes troubles for the majority of societies in the world. It does not matter if a person is small or big, the word mathematics evokes a negative reaction among everybody. Experts dealing with a process of teaching maths and improving the effectiveness of education, emphasize the need to move away from schematic ways of teaching. It is obvious that the primary handicaps appear in communication. The language used by a teacher and the language of a child differ. The adult's language is sublimated, but a child uses simple language which is filled with everyday experiences. What for a teacher is natural, can be for a child too complicated. The language changes together with the development of mental ability. Every human being overcomes the following phases of mental development, enriches the vocabulary, but not always achieves the proper level of abstraction. Thus numerous problems of a verbal nature appear; a child is not able to understand the words of a teacher. According to the child, a teacher speaks an artificial, abstract language. In such situations, verification of ways of creating mathematical knowledge is necessary.

Learning mathematics successfully should be similar to learning to ride a bicycle. Everybody remembers the day when tried riding a bike for the first time, when step by step, achieved success. A small child, in order to ride a bike, uses two stabilizers. When balance has been achieved, it is enough to support it with a small stick fixed to the bike. Then, a child tries to overcome all the difficulties without any help, falls off the bike and bruise his or her head. However, bruises and injuries do notdiscourage a child; it gets back on the bike and elaborates in his or her mind the strategy to master the rules that are responsible for balance. A child has a conversation with a leading person, listens to advice. Such knowledge, created and based on experience cannot be forgotten.

Would it be possible to learn how to cycle only according to theory: how to keep balance, how to hold a handle-bar and pedals and how to bring together all these activities?

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Abstract:

The first part of the article presents the meaning of difficulties as well as their classification. It gradually moves on to natural and specific difficulties within mathematical education. It considers those difficulties that have been neglected within the analyses of the researchers concerning existing difficulties within mathematical education.

Keywords: maths, difficulties, didactic activity, innovative methods, innovative forms

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Psychological and Pedagogical Assistance to Children in Public Kindergartens and I–III Classes of Primary School in the Light of Polish Legal Regulations

Introduction

The Directive of the Minister of National Education of 17 November 2010 on the rules of providing and organizing psychological and pedagogical assistance in public kindergartens, schools and institutions (published in the Law Gazette of 2010 No. 228, item 1487, p. 15706–15711) (RMEN-PPP) has been in force in an unchanged form in the Polish education system since 1st February 2011. It draws the attention of people engaged in the process of formal education to, among other things, the way of organizing psychological and pedagogical assistance in kindergartens and schools. RMEN-PPP defines the range of assistance and indicates which pupils require support due to their individual needs of development and education, and due to psychophysical possibilities.

The issue of learning difficulties has been the subject of analyses and practical activities conducted by Polish educators and psychologists (Bogdanowicz, 2004; Cieszyńska, 2005; Krasowicz-Kupis, 1999; Sochacka, 2004). The notion itself is not clearly defined. It is controversial due to its interdisciplinary character (Krasowicz-Kupis, Pietras, 2008) and the possibilities of approaching it from the point of view of diverse cognitive orientations (Półtorak, 2012, p. 46). However, the essential thing is to show the ways of psychological and pedagogical assistance to children who reveal different difficulties (Farnham-Diggory, 1992; Fisher, Cummings, 1993; Clayton, Morrison, 1995; Rayner, 2011; Jaszczyszyn, 2012). The mentioned directive

(RMEN-PPP) points to the causes of learning difficulties which result from: disability, social maladjustment, risks of social maladjustment, special talents, specific learning difficulties, linguistic communication disorders, chronic illness, experience of crisis and traumatic situations, educational failures, environment neglect connected with the living standard of the child and his/her family, ways of spending free time, contacts with different environments and adaptation difficulties conditioned by cultural differences or the change of education environment (including the change connected with prior education in a foreign country) (RMEN-PPP, §2.1).

Psychological and pedagogical assistance has been organized and provided in kindergartens since 1st September 2011 and in primary schools since 1st September 2012 according to the rules defined in the analyzed directive. It is worth familiarizing oneself with the document in order to initiate quick and effective procedures of supporting children with difficulties at the early stages of education.

Legal regulations in Poland define precisely the aims of psychological and pedagogical assistance, indicate the rules of receiving this kind of support and describe procedures. *The Directive of the Minister of National Education on the rules of providing and organizing psychological and pedagogical assistance in public kindergartens, schools and institutions* defines:

- Who and in what way can receive psychological and pedagogical assistance?
- Who, after recognizing an individual child's needs, should programme suitable support and plan appropriate forms of assistance?
- Who and in what way should organize psychological and pedagogical assistance?
- What forms of support are provided for by Polish legislation?

Groups of people entitled to receiving psychological and pedagogical assistance

It is worth emphasizing that the psychological and pedagogical assistance offered in the kindergarten or school is directed not only to children

but also to their parents and teachers, and receiving it is voluntary and free of charge (RMEN-PPP, §3). The assistance can be provided if it is requested by the pupil, his/her parent, teacher, a tutor of a childcare group or a specialist conducting classes with the pupil, a psychological and pedagogical clinic, including a specialist clinic, an assistant of Roma education or a teacher's assistant (RMEN-PPP, §5).

As regards parents and teachers, the assistance consists in supporting them in solving educational and teaching problems, and problems of educational abilities. The aim of such activities is to increase the effectiveness of psychological and pedagogical assistance provided to children (RMEN-PPP, §2.2).

People entitled to the provision of assistance

People entitled to the provision of assistance to children are "teachers, tutors of childcare groups or specialists in kindergartens, schools and institutions performing tasks in relation to psychological and pedagogical assistance, particularly psychologists, educators, speech therapists and career advisors" (RMEN-PPP, §4.2, p. 15706).

Their pedagogic activities serve two aims.

– The first of these is connected with recognizing "individual developmental and educational needs and psychophysical possibilities of pupils, including those who are particularly talented, and planning the ways of satisfying the needs" (RMEN-PPP, §18.1 item 1, p. 15708).

As regards the kindergarten, pedagogic activities consist of conducting pedagogic observation, which results in an analysis and diagnosis of the child's readiness to attend school. The gathered information is of help to parents in recognizing the state of readiness of their child to start education at primary school, and to the kindergarten teacher in designing an individual programme of supporting and correcting the development of the child.

Observations and pedagogic measurements are to be carried out in I–III classes. They aim to recognize in pupils the risk of the occurrence of specific learning difficulties (RMEN-PPP, §18.1 item 1).

These diagnostic requirements defined by RMEN-PPP result from the fact that the symptoms of developmental dissonances and abnormalities in the functioning of individual analyzers are noticed even in young children. An early diagnosis and appropriate preventive-therapeutic measures can remove or reduce them (Walkowiak, 2011, p. 125–126).

– The second aim of pedagogic activities indicates the need to identify interests and talents of pupils who are specially gifted and to plan appropriate support (RMEN-PPP, §18.1 item 2).

In this variant it is important to stimulate pupils' creative activity and to ensure them the best possible conditions to develop their abilities and interests.

The organization of assistance provided to pupils

In kindergartens and schools the organizer of assistance is the head teacher of the institution (RMEN-PPP, §4.1). He/she initiates the assistance in cooperation with "pupils' parents, psychological and pedagogical clinics (including specialist clinics), teachers' training centres, other kindergartens, schools and institutions, non-government organizations and other institutions working on behalf of the family, children and young people" (RMEN-PPP, §4.3, p. 15706).

However, it should be mentioned that "the current monitoring of pupils' school achievements is one of the important tasks of every teacher. It is a source of information about the pupil's development, pace and effectiveness of acquiring knowledge and abilities defined in the curriculum, and about problems and difficulties which can appear in the course of acquiring them. (…) Any symptoms of appearing difficulties that are noticed by the teacher helps to take decisions about the necessity of

including the child in a widened specialist diagnosis in the psychological and pedagogical clinic, which provides a basis for the further directing of education and, if necessary, therapy for the child" (Półtorak, 2012, p. 61).

If it is ascertained that a child, as a result of developmental and educational needs, requires psychological and pedagogical assistance, then the person noticing the difficulties should immediately inform the head teacher of the kindergarten or school about it. After receiving a signal from a teacher about the need of assistance or submitting a certificate or opinion (a certificate of the need of individual obligatory kindergarten preparation, or a certificate of the need of individual teaching, or an opinion of a specialist clinic), the head teacher of the institution should immediately form a team and appoint a person coordinating work (RMEN-PPP, §19.2).

As regards children with recognized interests and talents, including specially gifted children who do not have a certificate or opinion, the head teacher should immediately form a team after receiving information from a teacher, a tutor of a childcare group or a specialist. Information on the need to support such a child is sufficient for the head teacher to take action.

The team, engaged in planning and coordinating psychological and pedagogical activities, consists of teachers, tutors of a childcare group and specialists who conduct classes with the child (RMEN-PPP, §19.1). Moreover, if it is necessary, parents, psychological and pedagogical clinics, including specialist clinics, teacher training centres, other kindergartens, schools, non-governmental organizations and other institutions working on behalf of the family, children and young people, should be invited to cooperate (RMEN-PPP, §22.3). The cooperation of different institutions on behalf of the child can definitely increase the effectiveness of the psychological and pedagogical assistance provided in kindergartens and schools.

The tasks of the team include:

– determining the range of psychological and pedagogical assistance that the child requires,

- defining the recommended forms, ways and time of assistance,
- considering information and guidelines for activities contained in the issued documents, such as a certificate or opinion if the child has any.

When beginning its work, it is important for the team to recognize the current situation of the pupil and issue a card of pupil's individual needs. It is important to know if the child already had a card of pupil's individual needs at an earlier stage of education because on the basis of the information contained in the card, the team can define the recommended forms, ways and time of assistance to the child (RMEN-PPP, §20.2). After the completion of education, the card is given to the parents and with their consent the school can send a copy to the next school.

The head teacher considering the recommendations of the team "determines for the pupil the forms, ways and period of psychological and pedagogical assistance and the amount of the time for each form of assistance" (RMEN-PPP, §21.1, p. 15708). The pupil's parents are immediately informed in writing about the decisions.

The team designs a plan of supporting activities (PDW) for the pupil based on the decisions made by the head teacher. The plan should take into consideration:

- goals to be achieved in the area in which the child needs assistance,
- performed activities,
- work methods,
- the extent of adjusting educational requirements arising from the curriculum to individual developmental and educational needs and psychophysical possibilities (The Directive of the Minister of National Education of 17th November 2010 on the conditions and ways of assessing, classifying and promoting pupils and students, and setting tests and examinations in public schools (Law Gazette No. 228, item 1491 of 2nd December 2010) (RMEN-OKP),

- activities supporting a child's parents,
- the extent of cooperation with specialist clinics, teachers training centres, non-government organizations and other institutions working on behalf of the family, children and young people (RMEN-PPP, §22.1).

The team issues a card (KIPU) and retains it (RMEN-PPP, §27.1). It also makes an assessment of the effectiveness of assistance provided to the child, including a given form of assistance after having finished providing it, and the assistance provided in a defined school year. It is possible to make an earlier assessment of the effectiveness of the form of work with the child. An application in this matter can be submitted by a pupil's parent or a teacher conducting compensatory classes or specialist classes. In both variants the team making an assessment formulates conclusions and guidelines concerning further work with the pupil (including the recommended forms, ways and period of providing further pedagogical and psychological assistance to the pupil (RMEN-PPP, §23.3). It should be emphasized that the head of the institution considering the assessment made by the team can decide to shorten the period of providing assistance to the pupil; that is, of finishing it earlier.

Therefore, an earlier diagnosis and properly organized pedagogical intervention is of key importance for properly organized pedagogical and psychological assistance in public kindergartens and I–III classes of primary school.

Forms of assistance in the kindergarten and in the school

On the kindergarten and school premises, the assistance is offered by teachers, tutors of childcare groups and specialists in the form of counselling, workshops and trainings. Pupils participate in counselling, and parents and teachers in counselling, workshops and training (RMEN-PPP, §6.1. item 6, §6.2. item 2 and §6.4).

Table 1. Forms of psychological and pedagogical assistance in the kindergarten and school

Kindergarten	School
1. Specialist classes: Corrective-compensatory Speech therapy Socio-therapeutic Other therapy classes	1. Specialist classes: Corrective-compensatory Speech therapy Socio-therapeutic Other therapy classes
2. Counselling	2. Counselling
	3. Compensatory classes
	4. Classes developing talents
	5. Classes of therapy

The authors' own study is based on the Directive of the Minister of National Education on the rules of providing and organizing psychological and pedagogical assistance in public kindergartens, schools and centres of the 17th November 2010 (§6.1 and §6.2).

Specialist classes (see table 1) should be organized for children who have a certificate or an opinion, or their needs of psychological and pedagogical assistance have been recognized by the teacher. The organisation of classes for talented children in both kindergartens and schools is recommended. All kinds of classes should be conducted only by teachers and specialists holding proper qualifications (RMEN-PPP, §6.1–3, §14).

Compensatory classes are aimed at improving disordered functions and supporting well developed functions which can support disordered functions or replace them if necessary. The classes are organized for pupils with developmental disorders and aberrations or specific learning difficulties. The number of participants in the classes should be 5 (RMEN-PPP, §10). "Compensatory work is a conscious and responsible activity for overcoming the state of both disharmonious development and its consequences in the form of specific learning difficulties and pupils' behaviour (Jastrząb, Baczała, 2011, p. 25).

Speech therapy classes are organized "for pupils with speech disorders, which cause disturbance of linguistic communication and make learning difficult. The number of participants of the classes is up to 4. (…) Socio-therapeutic classes and other classes of a therapeutic character are organized for pupils with dysfunctions and disorders hindering their social functioning. The number of participants of the classes is up to 10." (RMEN-PPP, §11 and §12).

Compensatory classes are directed to less talented children and those who have been neglected in terms of environment and/or education. They are attended by pupils with learning difficulties and particularly pupils with difficulties in fulfilling the educational requirements arising from the programme basis of general education. The number of participants of the classes is up to 8 (RMEN-PPP, §9).

Classes for developing talents can be organized on the school premises. They are created for particularly talented pupils and are conducted with the use of active methods of teaching. The number of participants of the classes is up to 8 (RMEN-PPP, §8).

The time of duration of the above mentioned classes varies. One unit of specialist classes is a maximum of 60 minutes per week, and compensatory and developing talents classes are up to 45 minutes.

For pupils who are revealing homogeneous or doubling disorders which means that it is necessary to adjust the education organization and process to their specific educational needs and long-term specialist assistance, therapy classes can be organized. The number of participants is up to 15 (RMEN-PPP, §7.1).

The current changes in the Polish education system and in some legislative regulations are connected with the organization of assistance and the use of the described forms of assistance near the child, in his/her natural kindergarten or school space. It is heartening that recently the awareness of educational circles and parents has increased considerably (Cooper-Kahn, Dietzel, 2008; Dąbrowska, 2008, 2009). But until 2008 one of the main difficulties of early diagnosis was the lack of comprehensive tools. Nowadays such tools exist. They are designed to be used by school specialists, speech therapists, psychologists and educators. While hints,

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suggestions and designed materials which facilitate an early determining of a child's problem can be found by all teachers in the specialist literature (Hatcher et al., 2006; Blair, Rupley, Nichols, 2007; Cameron et al., 2008; Dawson, Guare, 2009; Jaszczyszyn, 2009, 2010; Mercer, Mercer, Pullen, 2010) and specialist web pages.

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Rozporządzenie Ministra Edukacji Narodowej z dnia 17 listopada 2010 r. w sprawie warunków i sposobu oceniania, klasyfikowania i promowania uczniów i słuchaczy oraz przeprowadzania sprawdzianów i egzaminów w szkołach publicznych (Dz. U. Nr 228, pozycja 1491 z dnia 2 grudnia 2010 r.).

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Abstract:

New legal regulations in Poland provide for the need of earlier diagnosis and intervention. The regulations refer to two different diagnoses, i.e. a teachers' diagnosis and that of the specialist (clinical). The teachers' diagnosis (of the kindergarten and school) results from the process of recognizing and assessing a child's problems. While the specialist (clinical) diagnosis is carried out at the psychological and pedagogical clinic. Both forms complement each other. A preliminary

assessment of the lack of readiness to attend school and the risk of specific learning difficulties should be made as early as at the preschool stage within the teachers' diagnosis.

The discussed directive (RMEN-PPP) imposes an obligation on the kindergarten and the school and makes the institutions responsible for recognizing children's difficulties and providing them with assistance. However, if the assistance is to be effective, the mentioned centres should cooperate with parents and specialists from the clinic.

Keywords: learning difficulties, psychological and pedagogical assistance, legal regulations of assistance to children

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Teaching English Elementary Pupils – Problems and Solutions

Nowadays teaching and learning foreign languages is very popular. Most people all over the world are bilingual; those who are monolingual are the exception. Today the world is multicultural and multilingual and we have to speak foreign languages to communicate to each other effectively. In Europe teaching young children English is especially popular as a first foreign language, with German and French being the next most popular languages. Learning a foreign language is obligatory from the first class of elementary education in most European countries, as has been the case in Poland since 2008/2009 (Roz. MEN z dn. 23.12.2003). The most common foreign languages in our country at that level are English and German. According to the National System of Educational Information, in Poland in 2011, the number of early education pupils (from the first to third classes) that learned English – 202 052, German – 163 301 and French – 6 289 (www.cie.men.gov.pl, access 20.08.2012). It shows that most pupils learn English as a second language. It is widely believed that starting language education earlier provides better opportunities in the future. If it takes places in an environment which supports a learner's progress and allows for the continuity of the target language throughout primary school and then secondary school classes.

Difficulties of learning and teaching the English language

Learning a foreign language is a long and complex process. Complete commitment, complete involvement, complete intellectual and

emotional responses are necessary in order to send and receive a message in a second language successfully. Learning a foreign language requires not only learning some words but also a new culture, a new way of thinking, feeling and acting (Brown, 2000, p. 1)

Teaching English to young learners can be difficult and ineffective for several reasons. We can divide them into two groups: those connected with the pupils and their inner-difficulties, and those connected with an inappropriate learning process.

It is important to explain the definition of *learning difficulties*. There are many descriptions of learning difficulties but the author has selected only a few of them. The National Joint Committee for Learning Disabilities claims: "learning disabilities is a genetic term that refers to the heterogeneous group of disorders manifested by significant difficulties in the acquisition and use of listening, reading, writing, reasoning or mathematical abilities. These disorders are intrinsic to the individual and presumed to be due to central nervous system dysfunction. Even though a learning disability may occur concomitantly with other handicapping conditions (e.g. sensory impairment, mental retardation, social and emotional disturbances) or environmental influences – e.g. cultural differences, inappropriate institutions, psychogenic factors, it is not the direct result of those conditions or influences" (Nijakowska, 2011, p. viii).

According to K.J. Klauer and G.W. Lauth, learners that achieve low educational results "are not characterized by permanent deficiency of competences, but they do not learn effectively enough – they fail to use appropriate learning strategies (e.g. they guess the answer instead of remembering the contents that they had learnt before)". Kaner also claims that "teachers should remember that some learning difficulties are connected to the exact task only, but they may accumulate in some educational areas" (Werning, Lutje-Klose, 2009, p. 21).

Gifted young learners can also suffer from some learning problems. Some of them do not use their mental potential fully because of personal or social difficulties. When they achieve lower educational results they will think about themselves negatively and have low self-esteem. They do not believe in their potential. They might behave aggressively, have

a poor level of motivation for learning and do not show strong persistence of their school activities (Dyrda, 2007, p. 36–37).

As for external factors that make teaching and learning English difficult in our country we can enumerate:

- the poor integration of the English language into the primary curriculum (as opposed to e.g. the Czech Republic where English language is mostly integrated into primary curriculum);
- insufficient pedagogical and psychological knowledge of English teachers about the special educational needs of elementary pupils;
- the shortage of foreign language teachers, especially in the small village schools (many of them have opportunities to change their profession and move to international companies);
- a shortage of varied didactic devices;
- not enough time devoted to English teaching in the curriculum (as opposed to the Netherlands, Belgium or Luxembourg).

The specification of the English language can also cause some problems to elementary learners. Each foreign language is based on a constituent phonological system and the ability to distinguish between each sound is an important condition in order to use it properly. As for the English language, it is a West Germanic language that was first spoken in England and is now the first language spoken by the majority of several nations, including the United Kingdom, the United States, Canada, Australia, Ireland and New Zealand). The English language has assimilated many words from many other languages through history. Modern English consists of a very large vocabulary with complex and irregular spelling, particularly vowels. There are twelve pure vowel sounds in Standard English. It means that there are twelve units that can differentiate word meaning. There are pairs of words, such as *ship* and *sheep* which can be distinguished by replacing one of these vowels by the other. Differentiating similar sounds is a quite difficult issue for elementary language pupils of English. Bad pronunciation can derive from bad understanding

(McMahon, 2002, p. 2–3; Nijakowska, 2007, p. 146). In the English language there is also dissonance between grammatical rules. Under no circumstances can English teachers teach elementary learners structural grammar or use some technical terms to refer it. Children do not learn the rules of spoken language by explicit instructions, but rather by coping what they hear, and building up a mental generalization based on their own experience.

Teaching English to elementary learners – the most significant factors of the influence of successful learning

The integration of English into the primary curriculum

Children learn holistically, and teaching English to them has to be embedded in their general primary curriculum. English lessons cannot be separate units which only present and practice a new language. Teachers of English have to take care to establish clear links between language lessons and the knowledge and skills children acquire at school (Szpatowicz, Szulc-Kurpaska, 2011, p. 29). Brewster sees the origins of integration in the fact that certain aspects of good primary practice are used in teaching English as a foreign language (e.g. the rules as practicality or regularity). The author claims that the phenomenon of primary teaching is "its emphasis on its learners-centredness and the creation of a supportive learning environment (Filipiak, 2012, p. 27). Moreover, S. Halliwell has presented some arguments for the integration of English into the primary curriculum. First of all, she believes that language learning should be natural and should not be "set apart from the rest of learning. The learners should see the language as something that they manipulate not only in the classroom but also outside (home, playground)". Secondly, she refers to the language acquisition theory which stresses the importance of receiving and producing messages, as well as dealing with "the real meaning of the language rather than learning just words and structures for their own sake". And finally, she stresses the practicality of this approach (Wood, 2006, p. 150–151).

Planning the didactic process is one of the most important factors to make teaching English successful. The English teachers should plan it carefully. There are two main concepts connected with designing courses and planning teaching – the learning process that needs to be explained. They are the curriculum (an educational programme which states: the objects of the programme, its educational purposes, the means used to achieve these ends and the means used to assess educational goals) and the syllabuses – a more restricted concept which usually refers to a description of the contents of the course and the order in which they are to be taught (Szpatowicz, Szulc-Kurpaska, 2011, p. 19). In the Polish education system a syllabus or a curriculum has to be closely related to "a core curriculum" or "a curriculum framework" (podstawa programowa), which is a law outlining the learning outcomes for all educational stages and all school subjects/areas of knowledge taught in Poland. Based on this law and one's own experience, teachers write syllabuses. Apart from being consistent with the core curriculum, a syllabus should provide varied support for the teacher. It helps them to, for example, develop the learners' key competences and abilities, develop the learners' skills and abilities connected with the subject, plan lessons and prepare the scheme of work, teach the course contents by choosing the right methods and techniques and choose coursebooks and supplementary materials. When planning a syllabus, the teachers take into account more details related to planning specific aspects of the lessons which will be taught over a period of time (Komorowska, 2005, p. 74).

However, the fact of planning each lesson shows that the teacher is committed to his/her work and it suggests a high level of professionalism. For the teachers, the plan – however informal – gives the lesson/teaching day a framework. Of course, good teachers are also flexible and they respond creatively to what happens in the classroom. A balance has to be struck between the teachers' attempt to achieve what they set out to achieve on the one hand, and to what pupils are ready to achieve at the moment on the other (Harmer, 2000, p. 121).

The process of teaching English language should be individual. Learning must be unhurried, with time to explore, develop and reflect on

ideas and feelings. Learning begins with the learner and "where the learner is". Teachers should also recognize the individual style that young learners prefer. Visual learners tend to prefer reading, drawing and other graphic information, while auditory learners prefer listening to audiotapes or CDs. Of course, successful learners must utilize both visual and auditory input, but slight preferences may distinguish one learner from another.

English teachers that teach elementary pupils should repeat the contents many times, but in different ways to make them interesting. Some learners need more exercises to understand the contents and to remember some new words. They ought to gradate the difficulty of the contents and start from the easiest to the most difficult.

To make the process of learning English more individual, the teachers need some special pedagogical and psychological knowledge. According to research, some English teachers would like to know more about the special educational needs of their pupils (especially about dyslexia) in order to teach a foreign language more effectively (Karbowniczek, Ficek, 2010, p.183; cf. Karbowniczek, 2012).

We also have to remember that there is no single method or technique of teaching a foreign language. Certain learners seem to be successful regardless of the methods or techniques of teaching that are used e.g. *Total Physical Response, Communicative Language Teaching, Situational Language Teaching, Direct Method* and so on. We should use both active methods and oral methods of teaching (Cohen, 2004, p. 42–43).

The multisensory approach is recognized as being suitable for elementary learners. It is assumed that the more senses that are involved in the process of learning a foreign language, the more effective it is. Multisensory methods activate simultaneous engagement of several sensory channels and the synthesis of stimuli coming from these channels. Teaching reading and spelling should be realized by the integration of visual, auditory and kinesthetic stimuli (Nijakowska, 2011, p. viii).

Children are active learners and thinkers. They construct knowledge from the active interaction with the physical environment in developmental stages (children are very much linked to their surroundings).

Young learners tend to have short attention spans and a lot of physical energy. They learn through their own individual actions and explorations. Activity (both physical and mental) and experience are fundamental to effective learning. Children must be encouraged to take risks and make mistakes in order to develop their independence. Mistakes are significant aspects of learning (Cohen, 2004, p. 42).

Cooperative learning is an important factor that helps to establish a good relationship in the classroom. While learning English, pupils should also work together in the small groups to accomplish shared goals. Putting learners into smaller teams enables them to learn a foreign language effectively. It is a "win-win" situation for all the participants. Underpinning Vygotskyan theory is the central observation that development and learning take place in a social context, i.e. in the world full of other people, who interact with the child from its birth onwards. Whereas for Piaget, the child is an active learner alone in a world of objects, for Vygotsky the child is an active learner in a world full of other peers in the foreign language classroom. They play an important role in helping a pupil to learn new words, read stories, ask and answer the questions and find some solutions to problems (Cameron, 2001, p. 5–6).

Magdalena Szulc-Kurpaska encourages the teachers to perceive assessment as an integral part of learning foreign language. Assessment in education is the process of gathering, interpreting, recording and using information about pupils' responses to educational tasks. One reason to assess children's learning in a foreign language classroom is to match learning conditions to children's development and needs. English teachers undertake assessments in order to provide information to the class teacher, learning specialists and parents. They assess the acquisition of knowledge, the ability to apply to new situations, communication skills and attitudes. The assessment is through observation, an oral or written response (Schaffer, 2005, p. 219). The foundation of the assessment policy should be clear. Szulc-Kurpaska also proposes to involve children in the assessment process when it is possible. Foreign language teachers should allow their pupils to undertake self-evaluation. It empowers them to realize their educational needs (and also their

strengths and weaknesses) and they have control over their learning (Szulc-Kurpaska, 2003, p. 4–5).

Motivation, interest, engagement are also key components of learning English as a foreign language. There are several different views on motivation. They do not necessarily conflict with each other but rather complement each other because very often they focus on different aspects. Behaviourism lays emphasis on external rewards e.g. grades, test scores. According to this theory, children work to avoid being told off and to please the teachers and parents. The teachers who work with elementary pupils also use these methods to motivate their pupils and it usually works. However, one should realize that behavioral motivation is extrinsic, instrumental and beyond personal satisfaction (Cohen, 2004, p. 178). Learning a foreign language is a long and lasting process, and also requires more internal motivation. If motivation is to be successful then it must draw on a person and develop his/her self-esteem. It is important to note that self-worth is related to control over learning. "Maslow emphasizes the importance of pupils experiencing control over their learning process and sense of achievement, and being given rich and positive feedback." (Komorowska, 2005, p. 37; Mietzel, 2009, p. 368–370). A secure and caring environment and the promotion of pupils' self-esteem, sense of accomplishment of educational goals are essential ingredients for young learners (Cohen, 2004, p. 43). Many researchers claim that the best way to motivate learners is for the teacher to be motivated himself/herself to teach. Young pupils always sense if their teacher likes the subject that he/she teaches. When the teacher is really interested in teaching the English language, he/she will use interesting contents, various methods and didactic devices.

In conclusion, the United Europe offers Polish people much more education and employment opportunities. However, speaking at least one foreign language is a necessary condition to travel, work, study or live abroad. Polish teachers who teach foreign languages have a very important role when it comes to the foreign language acquisition of elementary learners. They should encourage them to learn English, a language that is very common across the world, throughout their lives. They

ought to adjust contents, methods, didactic devices, their knowledge and the right personal attitudes, to make the learning process successful. This short article consists only of some reflections that may inspire the readers to find some more solutions to overcome foreign language learning difficulties.

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Abstract:

The article investigates some problems that foreign language teachers may face when working with young pupils. They include especially poor memory, difficulties of distinguishing similar sounds, understanding the relations of a letter and a sound, decoding single words and so on. Some learners with learning difficulties and disorders present even more challenges for their language teachers. Furthermore, the author provides guidance for teachers that may help to overcome these problems. Thus, it is hoped the present paper will contribute not only to a better understanding of the problem area of difficult learners, but will also encourage teachers to implement some new solutions in their regular lessons.

Keywords: learning difficulties, learning disabilities, personal difficulties, social difficulties, integration English and primary curriculum, holistic learning, multisensory approach, cooperative learning, active learning

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The Issue of the Development of Scientific Literacy in the Field of Pre-school and Elementary School Pedagogy

Introduction

University education has an important role in the development of society, as far as the foundation of new pieces of knowledge is concerned, as well as transferring them to the students by the support of research and innovation. In Europe, there are as many as 4000 university type educational institutions, with more than 19 million students, and as many as 1.5 million university lecturers. According to the European Commission, the number of students studying at universities is insufficient, the study programmes of universities are not often adequate to the needs of the labour market, and these problems are similar in several different EU member states (European Commission, 2011).

The general aims of the European Union in the field of educational policy, which were formulated until the year 2010, pertained to the improvement of the education of teachers, development of key competencies, improvement of the number of students studying natural and technical sciences, improvement of attractiveness of teaching and learning, etc. (Achieving the Lisbon Goal, 2004). Of the particular aims (benchmarks), until 2010 we can mention the following: a 50% decrease in the ratio of males and females who graduate in the field of mathematics, natural sciences and technology (compared to the year 2000), and also ensure a significant growth of graduates of these particular fields of study; furthermore, to decrease by half the ratio of 15-year old pupils, who are attaining only under the average level of natural sciences, mathematics

and literary literacy; additionally, to make sure that at least 10% of the population at the age of 25–64 years, will participate in the life-long education (Achieving the Lisbon Goal, 2004, p. 21).

An important step, which was taken by the European Union in order to develop natural science education, was the formation of the expert group, the aim of which is to analyse in detail the ongoing initiative in the given field, and from the said research to gain a know-how, which could lead to a fundamental change in the interest of the young people in the study of natural sciences. The report compiled by the expert group summarises the claims of the professionals on the particular topic that the pedagogical approaches based on the so called research-based methods are more efficient than the procedures based on the traditional methods. Nevertheless, in the school practice of the European Union member states, science and research-based methods are not practically realized to a sufficient degree (Science Education NOW).

A great deal of contemporary research proves the idea that the students do not have a sufficient amount of natural-sciences knowledge. An international study titled PISA presents the findings that the level of scientific literacy of Slovak pupils (as well as the pupils in the neighbouring countries) is average or less than average, at the end of their compulsory schooling. This situation is getting worse, since a number of pupils continue their education at secondary schools, with a limited number of classes dedicated to education in natural sciences. Therefore we believe it is important to solve this situation by improving the quality of natural sciences education within university preparation of students, who are preparing for the profession of teachers at nursery schools and elementary schools.

This paper deals with the issue of improving of the level of scientific literacy of students studying the field of pre-school and elementary pedagogy. We propose a concept of education that applies experience-based education, which does not concentrate on the improvement of the breadth of encyclopaedia-based knowledge of students, but mainly aims at the improvement of the level of their ability to work scientifically and experimentally in order to solve difficult problems. We attempted to

prove by our research whether adherence to the proposed concept of education has any impact on the improvement of scientific literacy of students. We perceived scientific literacy as a set of various pieces of knowledge, skills and standpoints, which are the prerequisites for the solution of tasks and the situations of everyday life. The proposed concept of education was proven in the practice by pedagogical experiments, the results of which are explained in the paper.

A future improvement of the level of scientific literacy of students studying pre-school and elementary school pedagogy can be perceived as an important task, mainly because of the fact that these students are preparing for the education of children of pre-school age and the pupils of younger school age. According to a number of neuroscientists, the brain reaches top abilities at the age of five years. This is especially true of the period of pre-school and younger school age which are most significant for the development of an individual, for it is at this age that the individual has an open ground for the development of his/her skills and abilities, and if during this critical period such abilities are not developed, particular individuals shall never reach their potential abilities and the individual will never reach the potential that he/she could have (Sousa, 1998; Turek, 2008). It is in this period that we can develop the abilities to work scientifically, which are an indispensible part of scientific literacy, and motivate them to undertake education in natural sciences, which is becoming less and less popular these days. The problem of the inadequate level of scientific literacy of pupils and students lies in the fact that the students acquired only the formal parts of natural sciences education during their previous education. However, one of the most important tasks of the teacher should be to map out the individual pieces of experience of pupils or students and to find out which pieces of knowledge and experience they have acquired by being active during their previous education and extracurricular environment, and to follow up on them in the educational process. When construing a new piece of knowledge, it is very important to verify it, which is only enabled by the replacement of the original pre-concept by the required concept. The appropriate means for such verification include activating educational methods. Information

acquired through an activity, and this has an indispensible function in comparison to other kinds of information. Aside from this fact, on the basis of one's own experience, we believe it is more appropriate to make use of independent and group solutions of troublesome situations by the students, while the results and interpretations of the results are presented by the students in written or oral form. Even if the students of the field of study (pre-school and elementary school pedagogy) have developed abstract thinking and have been at the formal and operational level for a long time (according to Piaget), it is important for them to be able to manipulate the objects, study tools, through which they are able to follow various phenomena of the natural sciences.

Outline of basic terms – scientific literacy, natural science education, study field pre-school and elementary school pedagogy

Scientific literacy

The term ***literacy*** has a different meaning in the common language than in the pedagogy. It is generally perceived in connection to the acquisition of the ability to read and write, or come to terms with a trivial literacy. From the point of view of pedagogy, it is a broader term, according to B. Pupala (2000) we can say that "education = literacy", i.e. "the meaning of the term has been shifted and developed". Literacy generally means "an ability of the individual to become adjusted to the environment, manage the requirements of the social and cultural environment, an ability of the individual to survive through one's own literacy" (Held, in Kolláriková, Pupala, 2001, p. 354). We encounter the term literacy along with various adjectives, e.g. *functional literacy, technical literacy, visual or digital literacy*, which altogether form *cultural literacy*. The origin of these and various other terms of literacy is influenced by the fact that "the phenomenon and category of literacy are purely cultural products, their semantic content is shifted along with the changes in culture, so it is a historically changeable term" (Pupala, 2000). Scientific, technological, digital literacy, as well as other kinds of literacy, are " a part of the whole

human literacy…" (Pupala, 2000) and can be labelled by a more general term ***cultural literacy***, which "enables an individual to participate in (re)production of cultural values and tools, which join the particular cultural environment" (Pupala, 2000).

According to R. M. Hazen (2002) literacy in natural sciences is a blend of terms, history and philosophy, through which we can understand the scientific problems of contemporary world. Scientific literacy therefore means a broader understanding of the basic terms. It is not only the case of the specialised scientific language of experts. A common human being does not need to know the chemical composition of the newly invented medicaments in order to be certain of the significance of the medical development, nor does he/she need to calculate the orbit of the spaceship to be able to ascertain its significance in space explorations. By a degree of simplification we might say that an individual is literate as far as natural sciences are concerned, if he/she is able to understand research articles in the journals, e.g. dealing with the ozone layer or genetic engineering.

According to the National Science Educational Standards, scientific literacy is composed of the "knowledge and understanding of scientific concepts and processes required for personal decision making, participation in civic and cultural affairs, and economic productivity" (NRC, 1996, p. 22). Stemming from this definition, the scientifically literate person is able to find the answers to the questions, which originated in his/her curiosity, explain and predict natural phenomena, read, understand, and be able to discuss natural topics presented in the media, identify natural topics presenting fundamental information necessary for the creation of national and local decisions, making use of the data and pieces of evidence used for assessing the quality of natural information and arguments presented by the scientists or in the media. M. Their and B. Daviss (2002) define scientific literacy as a set of knowledge about scientific facts and terms associated with the ability to communicate these thoughts through language.

In the OECD PISA study (Programme for International Student Assessment), the term scientific literacy is perceived as "the capacity to use scientific knowledge, to identify questions and to draw evidence-based

conclusions in order to understand and help make decisions about the natural world and the changes made to it through human activity" (National Report PISA SK, 2007, p. 29). Scientific literacy requires a certain degree of reading and mathematical literacy, and it is assessed by the PISA study as one of the key competencies. Acquisition of literacy is a life-long process, which not only takes place at school, during formal schooling, but also through the interaction of the pupil with the parents, schoolmates and the broader community. Therefore, PISA concentrates on the broader understanding of the key terms, and not on the highly specified and specialised pieces of knowledge of particular subjects. The study does not test to what extent the pupils master the studied material prescribed by the curriculum and other pedagogical documents, for knowledge tends to lose its validity very rapidly in the contemporary knowledge-based society. Therefore, it should be constantly changed and supplemented.

Slovakia in the past five years participated in two significant international assessments of the level of scientific literacy – TIMSS in year 2007 and OECD PISA in 2009. In both assessments, we obtained below average results. The reasons for this unsatisfying level of scientific literacy can be found in the natural sciences education in the previous school years compared to other school years, when the pupils were tested. The level of scientific literacy is therefore influenced as early as primary or even pre-primary natural sciences education. Another reason can be found in the teachers, who teach these subjects. Are they themselves at a relevant natural sciences level? What is the quality of their natural sciences education at university?

Natural science education

The fundamental task of ***education*** is in general to pass on to the younger generation the culture of the particular society (Held, in Kolláriková, Pupala, 2001). According to E. Opravilová (1988, p. 17) the idea of education is to "absorb the results of knowledge and experience, which humanity has summarised…" It is because our culture keeps constantly reproducing and the sum of knowledge is constantly on the rise, the

requirement to pass on all the information of the younger generation is utterly unimaginable.

"In the period of information explosion, any attempt to reach perfection is utterly hopeless" (Turek, 2006, p. 116). It is impossible, even today, to become familiar with the knowledge of the world, not only in its basic terms. This information explosion creates larger and larger conflict between the limited capacity of the human brain and the ability of the individual to absorb the constantly increasing information (which is changing and becomes obsolete very quickly). Even the encyclopaedias get older more quickly than humans. This conflict can be solved only in such a way that we change the main aim of school education. Instead of passing on a large amount of mainly factual information, school graduates should rather be getting more tangible values and skills, than just mechanically memorised definitions, formulas, dates of birth of famous personalities, etc. (Turek, 2006). Instead of this, they should acquire the key competences (Hlaváčová, 2012), necessary for being able to master the tasks of ordinary life. Generally speaking, the aim of education is to develop the key competencies. From this we can follow the aim of natural sciences education, being the formation of scientific literacy.

Natural sciences education is connected with a set of scientific disciplines, which are referred to as natural sciences. These include the basic natural sciences – physics, chemistry, biology – and the derived natural sciences, e.g. geology, geophysics, meteorology, physical chemistry, biochemistry, mineralogy, etc. The term nature has a number of meanings; therefore we talk about a multi-disciplinary understanding of this term. In the narrowest sense, we are talking about Earth nature without humans and without the products of his or her actions; a broader understanding includes the Earth nature – the Earth, and in the broadest understanding, its universal nature – the Universe (Nový, 1989). In connection with these types and degrees of schools, the aims, content and immaterial means of natural sciences education is changed.

In *pre-primary education*, the issue of natural sciences education is included in the thematic curriculum titled *Nature*, which in its complex perceptual-motoric, cognitive and socially-emotional approach transgresses

cognitive and non-cognitive sphere of development of the child (Hajdúková et al., 2011, p. 85). In *primary education*, natural sciences education takes place primarily in the curriculum programme *Nature and Society*, mainly in the subject *Introduction to Biology*. The main aim of the subject is to develop the knowledge of the child in the field of cognition of the natural environment and the phenomena associated with it, so that the child becomes well versed in the information and is able to process it objectively, to the extent which is allowed by his/her cognitive level (ŠVP, Introduction to Biology – appendix ISCED 1, 2011, p. 2). In *lower secondary education*, natural sciences education is undertaken mainly through the curriculum programme *Humans and Nature*. This curriculum programme explains to the pupils the whole set of problems associated with studying of nature. Subjects of the curriculum programme – *biology, physics, chemistry* – put an emphasis on the active forms of the acquisition of knowledge, skills, abilities and competencies necessary for the development of natural sciences literacy (ŠVP ISCED 2). The curriculum programme *Humans and Nature* is included in *higher secondary education at secondary grammar schools*. The curriculum programme *Humans and Nature*, which includes subjects such as *biology, physics and chemistry*, enables pupils to look for legal connections between the observed characteristics of the natural objects and processes, which surround us in everyday life. The aim is not only to lead the pupils towards an understanding of the phenomena taking place in the real world, but also to teach them to think critically, as well as acquire and evaluate information (ŠVP ISCED 3A).

Natural sciences education can be developed not only at schools, but also in various extra-curricular organisations, and through a number of projects. The choice of the university, at which students prepare for their job, depends on the type of the secondary education, or on the extra-curricular education, as well as on the hobbies and other activities of the student. The best prepared students for the study of natural sciences are those who have graduated from secondary grammar schools. In contrast, some secondary schools do not have education in natural sciences. Since a number of students from various secondary schools are

enrolled at pedagogical faculties, students with various degrees of elementary pedagogy are included in the study programme pre-school and elementary school pedagogy.

Study in field of pre-school and elementary school pedagogy

In the ***field of pre-school and elementary school pedagogy***, students are prepared for the profession of pre-primary and primary education. The programmes for the education of teachers of pre-primary and primary education are enshrined, in most cases, in university studies in the developed world (Study programme 1.1.5 pre-school and elementary school pedagogy, in the system of fields of study. Accreditation commission, p. 1). In this paper we deal with such study programmes, which prepare the future pedagogues of pre-primary and primary education in the neighbouring nations of Slovakia, i.e. the Czech Republic, Poland, and Hungary.

For example in the Czech Republic, in the field of *předškolní a mimoškolní pedagogika* (Pre-school and elementary school pedagogy), the students have a choice of studying within the Bachelor's study programme preparing teachers for nursery schools. In the field *učitelství pro 1. stupeň ZŠ* (Teaching for primary school), the students have the choice to study in the Master's programme *učitelství pro základní školy* (Teaching for basic school). In Poland, people can prepare for such profession in the following study programmes: *pedagogika przedszkolna i wczesnoszkolna* (Pre-school and elementary school pedagogy), *edukacja przedszkolna i wczesnoszkolna* (Pre-school and elementary school education), *wychowanie przedszkolne i edukacja wczesnoszkolna* (Pre-school upbringing and elementary school education), *edukacja wczesnoszkolna z wychowaniem przedszkolnym* (Elementary education with pre-school upbringing), *pedagogika przedszkolna z rytmiką* (pre-school pedagogy with rhythm), *edukacja wczesnoszkolna z reedukacją* (Elementary education with re-education), *edukacja szkolna* (School education), *edukacja wieku dziecięcego* (Education of childhood), *zintegrowana edukacja wczesnoszkolna i wychowanie przedszkolne* (Integrated elementary education and pre-school upbringing), *zintegrowana edukacja*

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wczesnoszkolna i terapia pedagogiczna (Integrated elementary education and pre-school therapy), *wychowanie przedszkolne* (Pre-school upbringing) and others. In Hungary, the students prepare for the profession of teacher at the pre-primary level of education within the bachelor study programme for nursery schools (Pre-school Teaching) and for the profession of teacher at the primary level of education within bachelor study programme for primary education (Primary School Teaching).

The core of knowledge for the first level (bachelor) of the field of study of pre-school and elementary school pedagogy in Slovakia, in the methodological context it is ordered to include in the curriculum methodology of educational and formative activities in the fundamental spheres of formation and education, including Introduction to Natural Sciences (field of study 1.1.5 pre-school and elementary school pedagogy, in the system of fields of study. Accreditation commission, p. 3). The core of the knowledge for the second level (Masters) of the field of pre-school and elementary school pedagogy has been ordered to include in the curriculum in the pedagogical and psychological context the theory of formation of cultural literacy and in the didactic context the fundamental parts of primary education, including initial natural sciences education (field of study 1.1.5 pre-school and elementary school pedagogy, in system of fields of study. Accreditation commission, p. 4).

On the basis of the accessible information on the web pages of pedagogical faculties and the information acquired from university teachers, we can state that the number of natural sciences oriented subjects in the study programmes of pre-school and elementary school pedagogy at particular pedagogical faculties differs considerably. Sometimes these are two subjects, sometimes ten or more subjects that have a natural sciences flavour. The education of teachers of nursery schools and the junior level of primary schools lacks a national curriculum in Slovakia, as well as in the neighbouring nations; therefore the number of natural disciplines as well as its objectives, content, and means of teaching differ.

Survey of the current level of scientific literacy of students of pre-school and elementary school pedagogy

What is the level of scientific literacy of the students of pre-school and elementary school pedagogy? Within the mentioned research problem we attempted to find out whether the students are able to comprehend the natural sciences topics, whether they are able to professionally explain the natural sciences phenomena, or whether they are able to use scientifically backed facts. From these notions follow further questions: Can the students detect the problem, which is possible to research through scientific means? Can they identify the variables of natural scientific experiments? Can they make use of the natural scientific pieces of knowledge in a given situation? Are they able to describe or interpret natural scientific phenomena, ascertain or estimate their development or changes? Can they interpret scientific facts, draw conclusions, identify assumptions, evidence and causes leading to the outcome, reflect social impact of natural sciences on the development of technologies? (according to: Natural sciences. Tasks 2006, 2008, p. 91).

The aim of the survey was to ascertain the level of the scientific literacy of students of the field of study pre-school and elementary school pedagogy. The overall aim presupposed the following partial aims: find out whether the students are able to comprehend natural sciences topics, find out whether they are able to professionally explain natural scientific phenomena, find out whether they can use scientifically backed facts. In order to achieve the aims of this survey, we also determined the research methods, which included the following: a compilation of tests to determine the level of scientific literacy of students of the field of pre-school and elementary school pedagogy, a determination of the target groups, the undertaking of the collection of data from the respondents, quantifying and describing the acquired data, explaining the results and proposing an improvement on thestatus quo.

We assumed that the students of the study field of pre-school and elementary school pedagogy possessed a below average level of scientific

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literacy, which is expressed in in tests that scored lower than 50%. We also expected that the students might score higher in tasks relating to the professional explanation of natural scientific phenomena and lowest in solving tasks aimed at understanding of natural scientific topics.

The survey was attended by 369 full-time and part-time students of the field of study pre-school and elementary school pedagogy of 3 pedagogical faculties in Slovakia. In order to ascertain the level of scientific literacy of students of pre-school and elementary school pedagogy we applied the didactic test consisting of 31 tasks and 10 topics. The tasks were intended to demonstrate understanding of natural sciences topics, provide a professional explanation of natural phenomena and apply scientifically proven facts (c.f. Rochovská, 2012).

On average the students scored 40,6% in the test which a below average level of scientific literacy. The highest attained level in the test was 85%, the lowest being 12,5%. In similar surveys of the scientific literacy of students in a similar field of study (Melicherčíková, Melicherčík, 1996; Melicherčíková, 2011) the authors commented on the not very favourable situation which also has its roots in the fact that the majority of students of the field of pre-school and elementary school pedagogy have no secondary grammar school education, i.e. their education of natural sciences was rather limited.

Our expectations regarding results of the survey were proven for the tasks aimed at demonstrating an understanding of natural scientific topics, which were solved on average at 28,58%; the tasks aimed at a professional explanation of natural sciences was 56,27%; and the tasks aimed at the utilisation of scientifically proven facts was 38,27%. The students faced the greatest difficulties when trying to detect problems, which can be researched using scientific means, identifying essential terminology when searching for information and fundamental features – variable natural sciences outcomes. Therefore we believe it is beneficial during the university natural sciences education of the future teachers to stress the development of abilities of the scientific work of the students. We proposed the concept of natural sciences education of students of the field of pre-school and elementary school pedagogy in which we

concentrated on the development of the abilities to form research problems, variables, hypotheses and research conclusions. It is mostly through their research work that the students acquire natural sciences knowledge which they will be able to utilise when solving troublesome tasks of the everyday life.

Proposal for the concept of natural sciences education in the field of pre-school and elementary school pedagogy

The aim of the proposed concept of education is to prepare students of the field of pre-school and elementary school pedagogy for their future profession as teachers at nurseries and primary schools, and that they should be literate as far as natural sciences are concerned, i.e. they possess scientific literacy as an inevitable competence necessary for the 21st century, who are motivated to educate themselves constantly in the field of natural sciences and, to this end, they apply the abilities of scientific work. A further aim is to prepare these students in such a way so that they are able to project a formative and educational process of children of pre-school age and junior level of primary schools, which would be efficient from the point of view of developing their scientific literacy and motivation towards natural scientific cognition.

The proposal of the concept stems from an analysis of state of the art of contemporary natural sciences education in the university for the preparation of students studying pre-school and elementary school pedagogy (Rochovská, 2012) and from the above stated research results of scientific literacy. On the basis of the insufficient level of scientific literacy of students (mainly the level of the ability to determine scientifically researchable problems and identify variables of natural sciences research) it is necessary to strengthen their university education, for a very small percentage of them are graduates from secondary grammar schools which means that they only studied natural sciences to a limited degree and possess significant shortcomings in relation to it.

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Philosophical aspects of the proposed concept of natural sciences education

Every pedagogical concept has its philosophical context. Within the outline of a philosophical point of departure of the proposed concept of natural sciences education in the field of study pre-school and elementary school pedagogy we will concentrate mainly on one of the four components of philosophy – epistemology. It cannot be unanimously stated what the origin of knowledge is and what its function is in relation to subject – the environment. Of the three main, mutually competitive theories of knowledge – empirism, rationalism, and constructivism – works dealing with the didactics of natural sciences prefer constructivism. The reason is obvious, both empirism and rationalism understand knowledge as being independent of the functioning of human beings in their environment; the epistemology of constructivism perceives cognition " as the consequence of human activity through which it interacts with the environment" (Pupala, in Kolláriková, Pupala, 2001, p. 61).

Ideas about the origin and nature of cognition are essential for the constructivist approach to education. E. von Glasersfeld (1990) describes constructivism as a theory of cognition with its roots in philosophy, psychology and cybernetics. The content of education within a traditional school, both in its static and dynamic mode, gives the students new definite and a priori constructed truths, so it attempts to transfer an unlearned individual into learned one through artificial contents constructed outside of the individual, through which it expresses utter distrust in the individual. On the other hand constructivist perception of formation stems from the category of subjectivity. Its point of departure is the experience, independent cognition which is formed in everyday life situations. The constructivist approach expresses trust in the student by accepting his or her ability to form one's own understanding of phenomena positively transgressing it, creating new meanings, ideas, attitudes and beliefs (Kikušová, Pupala, 1995). The constructivist perception of cognition differs from the traditional one according to which the world exists outside of our control and individuals create copies of reality in our thought. On the contrary, according to the constructivist approach, the individual is aware

of what takes place in his/her mind, he/she knows his/her imaginations but the relationship between ideas and knowledge structures is debatable. As stated by Maturana, Varela (1980), and Rorty (2000), there is no "mirror" of nature at the level of receptors which would realise pure mirroring of the environment, only a mosaic of elementary intuitive states which are transformed into experience in the brain. That means that our body does not select the information but constructs it.

The psychological aspects of the proposed concept of natural sciences education

The psychological point of departure of cognitivistic concepts of development, stemming from the epistemology of constructivism, is cognitivistic psychology, which deals with the processes such as sensual cognition, imagination, fantasy, thinking, memory, learning, including the ability of abstraction, language and attention (Hartl, Hartlová, 2004). It emphasises the fact that cognitive processes are not limited to only scientific cognition but they are applied in everyday life when solving problems and making decisions. People are characterised by natural curiosity, they slowly acquire new and new pieces of knowledge and in this process formulate hypotheses as scientists, verifying or rejecting them (Čáp, Mareš, 2001).

In the cognitivistic approach the subject actively turns to the world on the basis of cognitive schemes which are formed from the influence of the environment on the human being. This approach appears not only in psychology but also in philosophy and contemporary didactics thinking the most influential position (Pupala, 2001). Cognitivistic theories of learning have brought about important pieces of knowledge relating to the influence of the activity of the student when accepting information. They emphasise that learning is an active process in which the individual creates his/her own interpretations of the accepted information, processes them through a transformation into understandable parts and creates one's own meanings of the reality. Cognitivists point out the fact that for efficient learning, the individual not only needs explanation of new facts but mainly an active incorporation in the teaching process through which his/her cognitive and practical skills are developed.

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A number of different ideas have been formulated in constructivism. The opinions of J. Piaget have influenced the stream of cognitive constructivism which emphasised the actions taking place in the brain of the student. Social constructivism stemming from the works by L.S. Vygotsky, have concentrated on the social and cultural conditions of learning and social interaction in the mechanism of learning. J. Piaget derives cognition from action which also includes interaction of the subject with physical reality. The concept of L.S. Vygotsky also presents the idea of the semi sphere – an interaction with the symbolic world of human culture and its input into the formation of knowledge. L.S. Vygotsky explains functioning of the human mind through social activities of people; the mind is formed from the symbolic interaction between them. Vygotsky's statements on the social origin of the human psychic lean towards the category of tool and sign, which represent human activity. These are the two aspects of the same phenomenon; the function of the tool is to change the outside world, the function of the sign is to influence at the level of human psychic (Pupala, 2001). It is on the basis of the merging of the two streams that the pedagogical constructivism stems from (Hartl, Hartlová, 2000) or the pedagogical movement constructivist pedagogy which according to J. Průcha (2009) emphasises in education the solving of life problems, creative thinking, manipulation with tools, team work, and less theory and drill.

Constructivist thoughts have a significant impact on the contemporary perception of education. An active role for the student is stressed, who constructs the meanings on the basis of cognitive structures that he/she has already formed. In such a perceived education, it is a case of introducing a certain degree of imbalance between student's already acquired knowledge and knowledge that is yet to be acquired. The teacher introduces problematic situations so that the students can express their own ideas, form questions, debate problems, express their own opinions, form objectives, collect materials, form hypotheses and prove them, draw conclusions, etc. Constructivism emphasises the construction of knowledge of the students and its active task in the process of cognition through one's own actions. Of the theories of constructivist didactics, we

can mention the following: the allosteric model of A. Giordan (Giordan, 1989) and epistemological cancellation of M. Larochelle and J. Desautels (1992). The overall characteristics of the said theories has been presented by Y. Bertrand (1998).

Proposal of subjects in the field of pre-school and elementary school pedagogy

On the basis of analysis of the information sheets of natural based sciences and subjects taught at various pedagogical faculties in Slovakia and abroad, we have proposed the subject titled *Introduction to natural sciences with didactics for pre-primary education*, which can be included in the Bachelor's study of pre-school and elementary school pedagogy and the subject *Introduction to natural sciences with didactics for primary education* which can be included into Master's study programme – teaching for primary education. The subjects include the subject part which develops the scientific literacy of students and the psycho-didactic part which develops the abilities to design formative and educational activities of children and pupils so that their scientific literacy is sufficiently developed.

The objectives of the subject in the Bachelor's study programme are formulated in the following way: "Acquire the ability to design pre-primary natural sciences education and natural sciences club activities as a process of developing the scientific literacy of children, to be able to operate formative and educational objectives in connection with the objectives and to be able to choose appropriate formative and educational methods, strategies, forms and material means. Acquire the ability of self-reflection of the realised natural sciences education at nursery school and in the school club. Acquire the knowledge of natural sciences, ability to work scientifically and the ability to transform them in the process of pre-primary natural sciences education and natural sciences hobbies." (Rochovská, 2012, p. 78).

The objectives of the subject in the Master's study programme are formulated in the following way: "Acquire the ability to design primary natural sciences education and natural sciences club activities as a process

of developing the scientific literacy of pupils, to be able to operate formative and educational objectives in connection with the objectives and to be able to choose appropriate formative and educational methods, strategies, forms and material means. Acquire the ability of self-reflection of the realised natural sciences education at junior level in primary schools. Acquire the knowledge of natural sciences, the ability to work scientifically and the ability to transform them in the process of primary education." (Rochovská, 2012, p. 80).

The content of the subject follows from the aims which mainly includes such professional natural scientific topics, which are imbedded in the content standard of the educational sphere Nature in the state educational ISCED 0 – pre-primary education and in the content standard of the educational sphere Nature and Society in the subject Introduction to Natural Sciences in the State education programme for the junior level of primary schools in Slovakia ISCED 1 – primary education. Besides this the topic's content includes the professional didactics with the application to natural sciences education.

We also describe the recommended teaching methods and form which are chosen in connection with the objectives. A number of practical methods are applied by the full-time students directly during the education of the subject and the part-time students undertake more home preparation, and their notes relating to the tasks solution become the subject of assessment. The students are assessed in a professional theoretical part (written examination in natural sciences), a practical part (the solving of experimental problem tasks) and a didactic part (preparation and presentation of natural sciences oriented educational activity/project of the lesson of Introduction to Natural Sciences and self-reflection from projects verification in practice). The information sheets contain basic study literature. The subjects are taught in the Slovak language, and there is also an English-language version that is available to any foreign students that enrol for these subjects.

In the proposed development programme we prepared the topics of the practical education of Introduction to Natural Sciences (simple machines, electrical energy, the Universe). Students of pre-school

and elementary school pedagogy emphasized in a number of surveys that these topics were the least popular (e.g. Melicherčíková, Melicherčík, 1996).

Fundamental strategies of the proposed concept of natural sciences education

Fundamental *strategies* of the proposed development programme of natural sciences education of future teachers in nursery schools and junior level of primary schools mainly include the following:

- *constructivist approach to education* – the active role of the student in the process of learning is decisive, which is perceived as the process of cognitive construction. Learning is undertaken through active manipulation with the subjects, their models, rocks, measuring appliances, etc.
- *teaching through the solving of problematic tasks from ordinary life* – learning starts with the updating of the previous knowledge and experience of the students, it is followed by the introduction of problematic situations which support the motivation of students. Students can mutually communicate, advise one another, discuss problems, have arguments which support the social and cultural context.
- *solving of project tasks through experiment* – the students solve project tasks in the form of independent (group) work. The core of the project is to solve the task through experiment, their own stating of the research problem, formulating independent variables, dependent variables, constant variables, acquire tools and material, formulate hypotheses, which are verified by practical activities. The outcomes of the problematic task's solution are presented in written and verbal forms with respective photo documentation or video documentation.

When undertaking experimental education, every topic started with finding out students' notions about the particular issue. The students

would express their expectations and their whole study process in a written or verbal form, in the discussion with the teacher. The topic continued by giving the problem task to the students who were supposed to solve it with the application of the recommended and easily accessible tools and materials – full-time students did so during the seminars, part-time students did so during their home preparation for the next class. The proposed problem task required from the students the stating of the research plan in a structure – research problem, variables (independent, dependent, constant), hypotheses, procedure, acceptance or rejection of the hypotheses, and conclusions. Subsequently, mainly part-time students documented their procedure with the use of photographs. Students, besides tools and materials, had at their disposal also educational material (Rochovská, 2012) from which they were able to draw information in case they lacked the necessary information for solving the task. Students were able to find out whether their primary ideas were in accordance with the verified and studied information, and they were able to undertake the reconstruction of their ideas in favour of scientifically acceptable explanations.

After the solution had been performed, there followed the evaluation. Students were given feedback from their teacher regarding their correct or incorrect solution which formed a forum for the reconstruction of their knowledge in case their conclusions were wrong. They were allowed to repeat their experiments and demonstrations (full-time students during their seminars, part-time students during their home preparation).

The teacher completed and specified the theoretical outcomes, emphasised a professional explanation of the phenomena and assigned the students with unspecified tasks in which the students were able to utilise their experience, acquired knowledge and skills. At the end the students were assigned another problem task which was due until the next class.

Results of experimental verification of proposed concept of natural sciences education of students of pre-school and elementary school pedagogy

Aims, tasks and hypotheses of research

The main objective of research was to prove experimentally the efficiency of teaching according to the proposed concept of natural sciences education in the university preparation of students in the field of pre-school and elementary school pedagogy. The following research tasks were derived from research objectives: draft pre-tests and post-tests aimed at determining the level of understanding of the selected natural sciences topics by the respondents, determination of the target groups (survey sample) and a realization of pre-tests, guaranteed realisation of teaching of the selected topics according to the proposed development programme (experimental group), guaranteed realisation of teaching of other topics in the form of traditional lectures and seminars (control group), the undertaking of post-tests, quantification of acquired data, and an explanation of research findings.

We formed the following research hypotheses:

H_1: We assumed that the level of scientific literacy of students in the field of pre-school and elementary school pedagogy tested by selected diagnostic tools would significantly statistically increase with the application of the proposed concept.

H_2: We assumed that the level of ability to explain the natural sciences terms and phenomena (in the selected topics) of students in the field of pre-school and elementary school pedagogy tested by selected diagnostic tools would significantly statistically increase with the application of the proposed concept.

H_3: We assumed that the level of ability to utilise natural sciences pieces of knowledge for the solution of tasks from the everyday life of students in the field of pre-school and elementary school pedagogy tested by selected diagnostic tools would

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significantly statistically increase with the application of the proposed concept.

H_4: We assumed that the correctness of the formed variables (during solution of problem tasks by the students in the field of pre-school and elementary school pedagogy) would influence the correctness of the hypotheses forming by students.

H_5: We assumed that the correctness of hypotheses forming (during solution of problem tasks by the students in the field of pre-school and elementary school pedagogy) would influence the correctness of students' conclusions.

Research methods

A number of research methods were applied in the research: pedagogical experiment, didactic tests, analysis of students' work, and questionnaires.

When teaching particular topics students were given the choice of various problem tasks which they solved practically. When assessing the tests their score from practical tasks was included in the score of the experimental group and the score from other tasks was included in the score of the control group. In order to determine the level of scientific literacy before and after the experiment we utilised the *didactic test* which included tasks based on explaining natural sciences terms and phenomena and also tasks based on the utilisation of natural sciences pieces of knowledge when solving tasks from ordinary life. The test was aimed at the topics of simple machines, electric energy and the Universe.

Another research method was *analysis of students' works*. Students were assigned two compulsory tasks of the topics simple machines and electric energy and one voluntary task from the topic the Universe.

In order to determine the opinions of students on natural sciences education based on experienced teaching we used a *questionnaire* which included 14 items, 4 of which were closed, 8 open and 2 semi-closed. We asked them about their content with the curriculum and methods. We also asked them what their most and least appealing lectures were, what in their eyes was beneficial in solving home problem tasks or whether

they found the information acquired during their studies unnecessary, and which they believed were the least possibly applicable in practical life. At the end the students were supposed to explain based on their self-evaluation, into which of the 6 levels of scientific literacy determined by the PISA study they belonged before and after studying the subject.

The basic set was formed by all Master's degree students in the field of pre-school and elementary school pedagogy in Slovakia. A selective set was determined by accessible selection. It was impossible to conduct accidental selection, for it was important to work with the study group as a whole. The selective set of the experimental research included a total of 122 part-time students of the first and second years in the Master's study programme of pre-school and elementary school pedagogy for primary education at Pedagogical Faculty, Catholic University in Ružomberok. Part-time students were selected on the basis that there were a greater number of students in the group, but also because of the fact that the teacher of part-time students has decreased the number of his/her classes by one third. It was possible to study the efficiency of the proposed methodology of such students to a greater degree than with full-time students. The extent of selection n was calculated by the formula (according to I. Turek, 1996): $n \geq z^2 . p (100 - p) / e^2 \geq n \geq 1{,}962 . 50 (100 - 50) / 102 \geq 96{,}04$. In the said formula *n* stands for the number of items of the selected set, *z* is the value of selected degree of significance $z_{0,05} = 1{,}96$, *e* is the calculated error (we chose = 10 %) and *p* is the relative number in percent where we put the recommended value p = 50. The experiment was in accordance with the condition of statistical processing and validity at the level of significance $z_{0,05}$.

Interpretation of research results

In order to statistically verify hypotheses $H_1 - H_3$ (which were preceded by the acceptance of hypotheses about normal distribution and number of score in the pre-test and post-test in the experimental and control groups) we used an χ^2 test for the table 2x2. In each and every testing zero and alternative hypotheses were formulated. The observed numbers of the students in the control and experimental groups who did

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not score better in the pre-test and post-test (minimally by 20%) we entered in the contingent table. From the observed numbers we calculated expected numbers according to the following formula: expected numbers = sum in column / total sum * sum in line.

For determining the level of statistical significance (the so-called p value) CHITEST was applied. The result (achieved level of statistical significance) was compared with the value of 0,05. If the assessed value was lower than 0,05, we rejected the zero hypothesis and accepted its alternative.

Hypothesis H_1 was confirmed at the level of 5% significance. In the experimental and control group there is a significant difference in the number of students whose score in the post-test improved compared to the score in the pre-test (minimally by 20%) and so the level of scientific literacy of students in the field of pre-school and elementary school pedagogy in the experimental group tested by the didactic system statistically significantly increased due to the exercising of the designed concept of natural sciences education compared to the control group.

When the pre-tests were conducted in the experimental group, the students reached the score of 10,89%; the results they obtained in the post-test were a bit higher 16,54% – the difference of the score in the post-test was much greater. In the experimental group the students reached 49,47% which were below average results but the score was much lower in the control group, only some 30,70%. These results are alarming especially when we consider the fact that the respondents were tested in the study materials which is dealt with in primary education, and, moreover, this applied development programme of natural sciences education was not at very high level of difficulty, as it built upon the previous knowledge and experience of the students. It would be beneficial to continue developing the scientific literacy of students. In the physical part of the subject Introduction to Natural Sciences in such a way that they utilised already acquired knowledge, skills and experience when solving unspecified problem tasks.

Hypothesis H_2 was confirmed at the level of 5% significance. In the experimental and control group there is a significant difference in the

number of students whose achieved score for the tasks dealing with the explanation of terms and phenomena in the post-test was much higher than in the pre-test (minimally by 20%) and so the level of ability to explain natural sciences terms and phenomena of pre-school and elementary school pedagogy students in the experimental group tested by didactic test increased considerably in comparison with control group.

The pre-test experimental group scored on average 6,7% and in the control group 13,50%. The post-test results were extremely low. The control group scored only 25,38% and the experimental group only 42,62%. Despite this low level of success we can follow some shift in the experimental group and its ability to explain terms and phenomena of natural sciences. These abilities should be further developed by solving practical tasks in which the students should verbalise their procedures and conclusions. Apart from knowledge of the natural sciences and understanding of the given phenomena and terms, further phenomena can influence the solving of tasks such as the verbal abilities of the students, his/her word-stock, etc.

Apart from the overall assessment of the level of understanding of particular terms and phenomena by the students we also concentrated on the comparison and improvement of the level of understanding of terms and phenomena in the pre-test and post-test among the students of experimental and control group. As stated by Ľ. Held, B. Pupala and Ľ. Osuská (1994) in order to follow deeper and more complex subjective processes of cognition and learning we cannot fully rely on quantitative approach. Therefore in order to deal with more individual specific terms of cognition leading to results of a different nature in order to create a more plastic image of the researched situation we completed the quantitatively processed results of our research by its qualitative counterpart. Because of the limited extent of our paper we are unable to publish all our findings. They are accessible in the monograph published within project KEGA of the grant agency of Slovak Ministry of Education (Rochovská, 2012).

In the process of the evaluation of research results, a number of definitions and drawings of simple machines in the pre-test differed only indetail from the definitions and drawings submitted by the pupils of junior

level of primary school conducting similar research (Krupová, Krížová, Melicherčíková, 2009). In the post-test, the experimental group results were of a higher quality but in the control group this shift was minimal or the answers of the respondents were formal, memorised from the textbook. In a number of cases in the control group the answers included definitions from the textbooks for introduction to biology at the junior level of primary school.

The extremely low level of success in the task solving of pre-test and post-test took place when the respondents were asked to define the process of generating electric energy. In this case memorised pieces of knowledge were not sufficient, for this task required also the description of the process, not only the stating of facts. Respondents who experimentally solved the problem tasks about electric energy were unable to manipulate or observe the process of such generation. Despite this fact they were more interested in this type of process, for their experience from experimenting motivated them towards learning; that is why they solved this task with a higher degree of success.

In contrast, the highest degree of success was recorded in solving the tasks about the Solar System. In this case respondents in experimental group practically created the model of the Solar System, manipulated the objects, they directly observed simulated phenomena which resulted in the fact that in the post-test they scored 95,45% of success.

Hypothesis H_3 was verified at the level of 5% of significance. In the experimental and control groups there is a great difference in the number of students whose score in the solving of tasks relating to ordinary life was higher in the post-test compared to their score in pre-test (at least by 20%) and therefore the level of ability to solve problems relating to the ordinary life of students studying pre-school and elementary pedagogy in the experimental group tested by the didactic test through the application of the proposed concept of natural sciences education was statistically significantly increased in comparison to the control group. Similarly, the results of testing the level of ability to solve the tasks from ordinary life of students studying pre-school and elementary pedagogy are also published in the monograph written by the author (Rochovská, 2012).

From the results in Table 1 and Diagram 1 it follows that students in the experimental group achieved a higher increase in score in all tasks than students in control group. Table 1 presents the percentage difference of the score in the post-test and pre-test in the experimental group, in the control group and the increased score in experimental group compared to control group. Unshaded are the tasks aimed at explaining the terms and phenomena, shaded are the tasks aimed at employing knowledge when solving practical tasks.

Table 1: Increase of score in EG (Experimental Group), CG (Control Group) and difference EG – CG

task	EG (y – x)	CG (y – x)	EG – CG
1a + 2a	45,95	26,39	19,56
1b + 2b	47,22	10,88	36,34
1c + 2c	66,67	15,64	51,03
3	27,78	12,93	14,85
4	38,89	8,17	30,72
5	25,22	11,11	14,11
6	51,36	20,83	30,53
7	79,17	26,53	52,64
8	95,83	31,63	64,20
9a	36,91	15,79	21,12
9b	36,72	6,25	30,47
9c	52,50	23,17	29,33
9d	39,59	14,06	25,53
9e	48,40	14,06	34,34
10	13,58	3,18	10,40
11	55,30	24,39	30,91
12	60,00	23,17	36,83
13	28,96	16,16	12,80
14	56,81	15,57	41,24
15	35,00	5,71	29,29
average	47,09	16,28	30,81
median	46,59	15,61	30,50
modus	-	23,17	-
max	95,83	31,63	64,20
min	13,58	3,18	10,40

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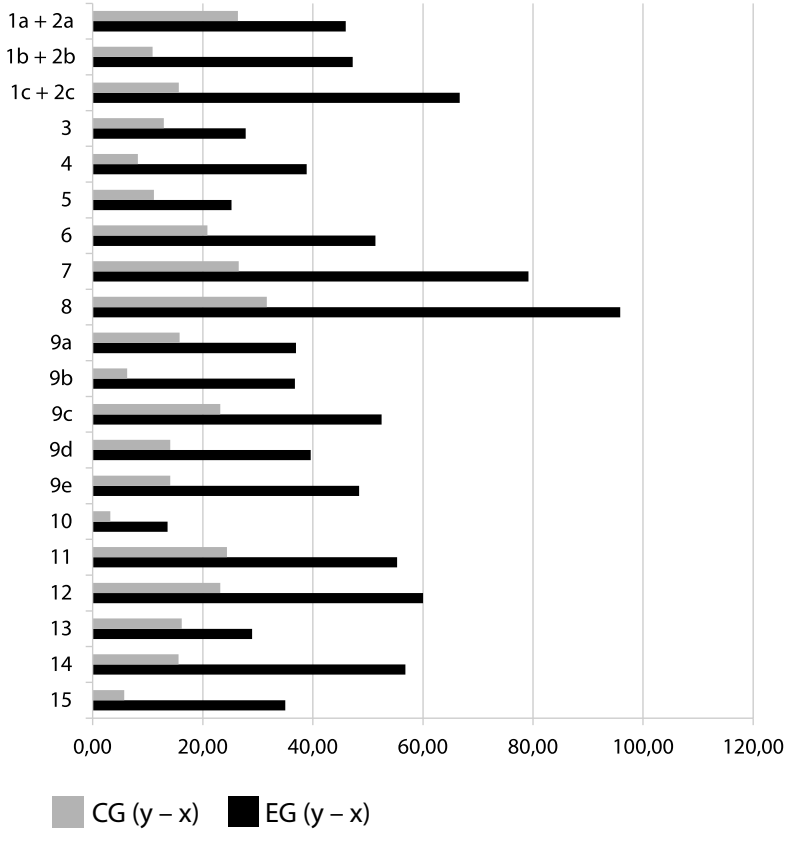
Diagram 1: Difference of score in post-test (y) and pre-test (x) in experimental (EG) and control group (CG) [%]



The highest increase of a score y – x achieved in experimental group was 95,83% and in control group 31,63%. The lowest increase of score in experimental group was 13,58% and in control group 3,18%.

Tasks in the pre-test were solved with a slightly higher degree of success than the explaining of terms and phenomena. The results of the experimental group were 14,88%, and those of the control group 20,08%. In the post-test, similarly, a higher degree of success was achieved than in the tasks aimed at explaining terms and phenomena. When solving the problem tasks, students in the experimental group scored 58,89% and in the control group 37,54%.

The lowest increase of score in the experimental group compared to the control group was at a task in which the students were to answer the question which of the workers is using a lower force when lifting a load; in one case, the load was lifted without a lever and in the other one with a lever. Despite the fact that students in the experimental group solved the task in a practical way, the increase of their score was 14,85%. This could be the result of wrongly measured data and the insufficient application of tools. They expressed these facts in the questionnaire, namely that the tools caused them major problems. In the next task which had a low increase of score, the respondents were supposed to answer the question how a child accompanied by an adult could enjoy a complex swing. This was not a problem with answers. The respondents would state trivial reasoning or would not provide any at all. It is generally known that students of various types and levels of schools have problems with argumentation. During a previous study (marked by a transmissive approach) they were not sufficiently led to argumentation. It is therefore important to support their argumentative abilities mainly during final presentations and interpretations of the projects. This is easier to undertake with full-time students because of the time management of the subject. With the part-time students there is no time for developing this skill during classical education, therefore we recommend the inclusion of a series of questions into work-sheets as part of home study of the problem tasks, which aim to develop students' argumentation and reasoning, not only their research activities but also their procedure, planning of research, etc. In another task with a low increase of score, respondents provided proposals aimed at saving electricity. This task had the lowest degree of increase of the score in favour of the experimental group, only 12,80%. The result was also influenced by the fact that they had already solved the task in the pretest with a success rate of 18,06% in the experimental group, and 17,35% in the control group. Aside from this, respondents of the control group were able to learn the principles of saving electric energy from the study materials because for this task memorising was sufficient. Nevertheless, learning combined with practical, experimental solutions

was more effective and the respondents of the experimental group developed their research skills.

The highest increase of score in favour of the experimental group was recorded in the tasks aimed at friction. In the first task the students were supposed to find out in which position the wardrobe can be shifted easily (placed on a bases with various surfaces) in order to use least strength possible. In another task students were supposed to find out whether during the task of pulling a sledge up the hill the child will be more tired with the rope aligned with the slope, or whether the adult who was pulling the rope at a certain angle would be more tired. For students without any practical experience with solving such tasks, these tasks were unclear. Students of the control group were therefore unable to solve this task in the post-test correctly, as opposed to the students in the experimental group who had sufficient knowledge and practical experience to solve the task correctly.

Overall, in the process of solving tasks aimed at explaining terms and phenomena, the average increase of score was in favour of the experimental group with 29,88% and when solving problem tasks 31,95%, which are comparable data.

We would make the following recommendations for the practice of developing of skills to utilise natural sciences knowledge for solving of practical tasks: students should have a greater opportunity to be able to utilise knowledge and skills acquired in experiments during the solving of other unspecified tasks which would be more difficult than the previous ones, but not so difficult that the students are unable to solve them and lose the sense of success. Learning should be so motivating for them that they are happy to solve the tasks and have a good feeling about acquiring new knowledge and experience.

In our research we concentrated on the analysis of the work of students. In every one of the seven problem tasks the students were supposed to state the research problem, independent variable, dependent variable, constant variable, hypotheses, procedure and conclusions. For every correct item they were given 2 points. For every partly correct item they were given 1 point.

To sum up, students managed to solve the tasks in their work-sheets at 70,15%, which is an above average level. They had sufficient time for solving these tasks (one month for solving tasks relating to simple machines and one month relating to electric energy). They had the possibility of searching for data in the literature or of consulting with each other about the tasks. Students were most successful in the topic of an inclined plane (77,23%); the topic with the lowest success was electric energy (62,64%). Overall, students had fewer problems solving the topic of simple machines than the topic of electric energy. The biggest problem for the students was to formulate the research problem, independent and dependent variables. The least problematic was the description of solving procedure. The solving of the partial tasks is included in Table 2.

Table 2. Solving of problematic tasks by students [%]

	research problem	independent variable	dependent variable	constant variable	hypotheses	procedure	conclusions	total
1	58,33	87,50	79,17	90,27	56,94	76,39	65,28	73,41
2	50,00	69,23	73,08	76,92	80,77	73,08	61,54	69,23
3	79,17	83,33	54,17	58,33	79,17	91,67	95,83	77,38
4	60,42	43,75	62,50	83,33	70,83	91,67	72,92	69,35
5	61,76	64,71	70,59	73,53	64,71	79,41	67,65	68,91
6	46,15	53,85	46,15	61,54	76,92	76,92	76,92	62,64
Σ	59,31	67,06	64,28	73,99	71,56	81,52	73,36	70,15

Legend:

Task 1 What do we need a lever for?
Task 2 How do we lift a weight? (roller)
Task 3 How do we move a weight? (inclined plane)
Task 4 What are electric conductors and semi-conductors? Is water an electric conductor?
Task 5 How does an electric circuit behave?
Task 6 How is electric energy produced?

On the basis of our research results we can confirm hypothesis 4 and hypothesis 5. Hypothesis 4 was confirmed because 62,28% of students formulated both incorrect variables and incorrect hypotheses. Hypothesis H_5 was confirmed because 71,93% of students formulated both incorrect hypotheses and incorrect conclusions.

For statistical verification of hypotheses H4 – H5 we used χ^2 test for the table 2x2.

Hypothesis H_4 was confirmed at the level of 5% of significance. There is no significant difference between the number of students who incorrectly stated variables when solving problem tasks and the number of students who incorrectly stated hypotheses when solving problem tasks. This means that the students of pre-school and elementary pedagogy were influenced by the correct stating of variables and correct formulating of hypotheses when solving the problem tasks.

As early as during research in scientific literacy it was determined that students of pre-school and elementary school pedagogy have problems formulating variables and research hypotheses. In a similar manner, when analysing the work-sheets we came across various mistakes. In order to improve the situation we recommend the inclusion in the process of natural sciences education more tasks which would be solved experimentally.

Hypothesis H_5 was not confirmed at the level of 5% of significance. There is a great difference between the number of students who stated wrong hypotheses when solving problem tasks and the number of students who formulated wrong conclusions when solving problem tasks. It means that the ability of pre-school and elementary school pedagogy students to state hypotheses did not greatly influence the correctness of the formulation of conclusions when solving problem tasks. Students apparently formulated their conclusions on the basis of experiment results and by their own logical reasoning. Hypotheses were formulated only on the basis of abstract thinking. This was more difficult for students than formulating conclusions which stems from practical experience acquired in experiments. The formulation of conclusions on the basis of experiment results and through logical reasoning was apparently simpler than formulating hypotheses on the basis of abstract thinking.

If the students drew incorrect conclusions on the basis of a wrongly conducted experiment they were always given feedback during the following lecture and seminar, and were better motivated to study the topics which they learned about through their own experience. They were able to study information in their materials regarding correct procedure and conclusions from the problem task. Results of their study are supported by their success in the didactic test.

In the end it is important to state evaluation of the designed experimental teaching by the particular students who are the target group of the project. It is important that they have a positive relation to the realised teaching so that they were motivated to be active (we mainly think about their internal motivation, expressed through their joy from learning and discovering). Students said that they were happy with the content of the lectures and with the applied methods. They were mostly content with the topics of experimental teaching and practical methods, mainly the solving of experimental projects, which were beneficial for them and enjoyable. Therefore it would be appropriate for university lecturers teaching natural sciences to gain as many grants as possible within which it would be possible to gain the materials and tools necessary for such experimental teaching. Respondents expressed their opinions that they would appreciate experimental teaching aimed at topics such as plants, animals, rocks and the Universe. The respondents believe that all natural sciences knowledge gained during natural sciences education can be practical in their future life, and most of them believe that the level of scientific literacy would increase by one level when they complete natural sciences education. The research results as well as the respondents themselves speak in favour of natural sciences education based on experience teaching.

Conclusions

Modern society is characterised by the extremely rapid growth of new technologies, information and information sources. Therefore people who want to be successful on the job market should be competent

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and literate in such an information environment, i.e. they should have the knowledge, skills and abilities adequate for the 21st century. Preparation should begin with pre-primary and primary education, which would help children and pupils from an early age to obtain and develop competences enabling their full participation in life and society. This however requires teachers who are literate for the 21st century, and who have such competences and can give the children and pupils the fundaments of such competences as platforms for their further development.

The aim of education for the 21st century is the development of key competences of children, pupils and students. Such competences stem from Delors (1997) and his generally accepted formulation of education aims – learn to learn, learn to act, learn to live together and learn to be. European programmes for the support of education are united in the aims of education which include the acquisition of key competences, including basic competences in science and technology. On the other hand it can be stated that natural education in Slovakia has been emphasising the compliation and reproduction of theoretical pieces of knowledge more than the essence of scientific research and thinking. According to the opinions of professionals of natural sciences education of younger pupils (e.g. Melicherčíková, Kopáčová, Bernátová, Held, Pupala, Wiegerová, Žoldošová, Čepičková, Podroužek, Šimík, Krížová and others) this process should include such activities enabling the pupils to use the acquired knowledge in new situations which would develop their competences to solve problems.

The task of natural sciences education is to make the children, pupils and students interested in nature and to teach them how to learn about it and research it. In order for the teacher to be able to fulfil such tasks it is important that he/she is motivated to discover nature and has acquired the methods to enable such discovering. Therefore it is necessary for the teachers to develop their own natural scientific cognition through similar methods which are recommended for natural scientific education of children and pupils. If the teachers discover the art of discovery and exploration they will be able to understand the advantages of exercising such activities in the education process of children and pupils.

In the paper we emphasise the implication of a constructivist approach to education. The advantages of such an approach to education are that the student is an active element as opposed to the traditional approach; therefore, the students learn better and with greater interest than in the traditional approach, his/her interests and curiosity are fulfilled, he/she develops his/her thinking and comprehension, this approach will enable better transfer of his/her knowledge, he/she is actively involved in his/her own assessment in which not only the result is assessed but also the process of learning; such students acquire not only knowledge and skills but also some key competences, mainly communication, interpersonal skills and cognition.

We attempted to include the above stated principles in practice during natural sciences education of future teachers in the field of preschool and elementary school pedagogy. According to E. Petlák (2004) it often happens that such students acquire a great deal of knowledge, e.g. about pedagogical competences, division of methods, forms of teaching; they know the definitions of pedagogical terms but they seem to have very little creativity when it comes to the formative and educational process itself. However according to I. Turek (2008, p. 135), "pedagogical faculties should act as shop windows of modern quality and efficient education". Teachers should be able to apply the most efficient teaching methods, strategies, approaches so that they would be a good example for their students, the future teachers. That is why we included in the proposal of natural sciences education development programme also the practically intended topics – verification of the proposed projects of education activities and the classes in natural sciences practice. Another solution to the topic of the transgression of theory and practice could be the faculty schools, which would enable the inclusion of new formative and educational methods, strategies, approaches and techniques directly into practice, and the students would be able to observe and verify their theoretical knowledge in practice. We include this only as a hypothetical solution and we did not deal with it in our publication, for it is a very difficult solution from the point of view of legislation.

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Solving of the topic of natural sciences education of teachers of nursery school and the junior level of primary schools is a broad and difficult topic. It cannot be fully covered within one paper or publication. The author hopes that she has managed to take a humble step forward regarding the topic, and draft some possibilities regarding how to further develop natural sciences literacy of students. By using three topics of the physical part of the introduction to biology – simple machines, electric energy and the Universe we pointed out that by adhering to a constructivist approach to education, the level of ability to solve problems and the level of acquisition of terminology increases. Students also express their positive opinions regarding the realised experimental education. It is for this reason that in the future we plan to analyse further topics using the same principles and create a series of study materials for students of pre-school and elementary pedagogy. We believe that we will be able to open the gate of knowledge for students which they will have to enter themselves.

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Abstract:

The main topic of this paper is the issue of the development of scientific literacy of students in the field of pre-school and elementary school pedagogy. The theoretical part is dedicated to outlining basic terms, such as scientific literacy, education in natural sciences, the field of study of pre-school and elementary school pedagogy. It presents the outcomes of research in scientific literacy of students of the field of pre-school and elementary school pedagogy in Slovakia. It analyses the concept of natural sciences education, designs a development programme of natural sciences education in the given study field. At the empirical level, it presents the results of experimental verification of the designed concepts of education and on the basis of research results, it presents recommendations for the educational reality.

Keywords: scientific literacy, natural sciences education, constructivism, cognitivism, pre-school and elementary school pedagogy

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Current Problems of Arts Education and Training in Primary Education

The current situation of the lingering cultural crisis and unfulfilled expectations resulting from the modernizing efforts of the educational concept of humanities education call in our view for a change of thinking as well as the ultimate break-up with the traditional understanding of music theory, theory of art or practice. The situation in the field of education in our country is still determined by a positivist way of scientific thinking and therefore we face a task of restoring the content, objectives, forms and methods to musical education work.

The objective of my study is to attempt to suggest new views on solving problems in the field of musical pedagogy, which are reflected along an interdisciplinary spectrum. We have decided to expand the musical-pedagogical questions into wider perspectives, i.e. to proceed from the knowledge of the most general connections of the meaning and objectives of human education to concrete areas of musical pedagogy. We concentrated on a widely framed objective which orientates the teachers' tasks in a new and innovative way because, at the present time, besides solving musical-pedagogical problems they are confronted with a lot of negative social phenomena (deformation of cultural and moral values). It has constantly been confirmed that in practical pedagogic activity teaching through art and the teaching of art itself can gain new dimensions only by means of returning to ethical values, to the revelation of new spiritual and moral dimensions for society, and to the revival of ideals beyond the mere self-interest of an individual. Therefore the objective is to recall Frankl's conception of man's orientation towards uncovering the senses and personal values, and making use of its principles

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in the area of musical pedagogy. That can be uncovered by an individual only through creative, experiential and attitudinal acts, especially in the area of music.

Actually, the facts of teaching practice has still not been sufficiently accepted, therefore we would like to point out some remaining problems in this area. As a possible solution, we argue for the consistent use of elements of Hatrík's method in the teaching process in primary school, because the philosophy of this musical-pedagogical concept largely reflects the indicated problems. Hatrík was inspired by stratification of the integration processes according to Wolfgang Roscher (author of the known polyaesthetical concept in Austria), who distinguishes the following types of integration: medial, anthropological, historical, geographical and social. The musical and dramatic projects of Hatrík have been realized with the students of the music lessons in cooperation with the children and peadagogues of the subsequent artistic subject field (literary and dramatic, visual arts). In the publication "Dreams-Projects-Maturation" (Musical workshop as a space for integration) individual projects by T. Pirníková and Z. Sláviková were analysed. The focus of the description consisted of observing the aspects of the sign character of music and their usage in the pedagogic context- was used qualitative methodology.

Philosophical and psychological contexts

Franklian logotherapy contains a stimulating concept, the point of departure for which is formed by the "spiritual dimension of man", which understands itself in today's complicated world as psychology, philosophy, and anthropology at the same time. This is a slightly older, but extremely topical concept at present, which attracted our attention in relation to the requirement that a man should have purposeful guidance in this chaotic time, in relation to the world of values, with the process of self-formation and self-modernisation of man; and thus also with the aims of the new school in the broadest sense of the word.

In this connection, V.E. Frankl (1997) points out three areas of the search and discovery of the sense: experience, creative and attitudinal values. These three ways lead to the formation of three value categories, i.e. creative values (man has an influence on the world also by virtue of creative activity where it is not only the performance which matters, but also the need to be beneficial for others), experience values (man lives in a dialogue with the world, he forms multifarious bonds which enable him to perceive the world as meaningful) and attitudinal values (not only an active life but also one that focuses on experience makes sense; life is potentially meaningful under any circumstances, even under the hardest conditions possible), which take up the most supreme position in the hierarchy of values according to Frankl.

Experience that is derived from a personal experience of the situation as well as from the consequences of one's own decision-making is a particularly important aspect of learning when searching for the sense. The ability to live through the moment in a focused and meaningful way is a certain pre-stage for searching for the sense. A full and deep experiencing presupposes that one is open to and accepting of the experience, and that it is retained in the memory so that we are able to recall it in certain situations in order to be able to reproduce the whole atmosphere of the experience, i.e. sounds, scents, warmth, pictures, etc. Thus, what helps deep experiencing of the present is a perfect concentration on the experiencing of a particular situation by all senses. It is shown that the one's personal experience has a far more significant impact on the attitude of children and understanding of the meaning of everything they do than verbal motivation. The inclusion of the decision-making process into the life of children at a very young age develops a feeling of freedom and responsibility for decisions in them. By explaining and justifying one's decisions the child learns the essentials of searching for the sense. A gradual increase in the degree of the freedom of decision-making and responsibility for decisions leads to the sensation of distinctness and independence. The transfer of personal experiences and consequences of decision-making are usually applied by a child to a variety of real-life situations and thus it gradually starts to search for answers to the meaning of life.

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The concept of the meaning of life is also closely connected with the focus of attention of the present-day psychology on the phenomenon of wisdom, which is understood as life integration and is the aim of educational efforts. Ruisel (2005) mentions the results of psychological research, which shows that man understands life and everything which is bound up with it as a meaningful whole due to wisdom. What is crucial in the context of our thinking, however, is that wisdom helps precisely to integrate and co-ordinate knowledge, various ways of thinking, clashes between contradictory poles of the given points of view, and thus solves thought, emotional and free opposites. In addition, tolerance for different attitudes, values and priorities also rank among the essential characteristics of wisdom. Thus, wisdom leads to a higher degree of tolerance and helps to understand other people's way of seeing the world. Ruisel (2005, p. 123) takes the view that the "width" (empathy), "height" (intelligence) and "depth" (reflexivity)[2] of a wise man enables him to form a more complex view of certain problems, and he thus acts accordingly. According to E.H. Erikson (in: Ruisel, 2005), man can achieve integrity and a harmonious state within his personality after having achieved a mature stage, having acquired the ability to accept success and failure, while being detached at the same time. Wisdom thus keeps the inner chaos in harmony and supplies man with identity. It integrates our person and roots it much deeper. This is why modern pedagogy regards it as one of the aims of its educational efforts.

From our point of view, it is interesting that wisdom requires logic which is grounded on contradictions and paradoxes, i.e. a dialectical logic.3 Contradictory judgements are comprised of uncertainty (an awareness of the diversity and complexity of situations) and reflexive relativism (an awareness of the subjectivity of the individual cognitive assumptions, priorities and definitions, as well as making opposites less

[2] Petříček (2009) defines "depth" as that something which is an irreducible moment, being resistant against deciphering and decoding by its complexity. In: *Myšlení obrazem*. Praha: Hermann a synové, 2009.

[3] Dialectics is understood by Ruisel (2005) as the transfer of one learning into another, where it is shown that these learnings are only one-sided and restricted.

distinct). In connection with the limitation of formal operations, Piaget (1993) has also called attention to the importance of manipulating contradictions. According to him, a dialectical thinking should be projected at higher levels of integrative complexity, for contradictions are only a transient stage, which is superseded by integrated and synthesizing thinking.

These views are further elaborated by K.F. Riegel (in: Ruisel, 2005), who has called to attention the fact that man at various levels of development may achieve maturity precisely by means of mature dialectical thinking. He states that even if a child has not achieved the desired results in Piaget's tasks, which focus on concrete or formal operations, s/he may achieve a dialectical maturity. Dialectal maturity can be understood as a kind of wisdom because dialectal conflicts are basic thought operations and prerequisites of thinking and creativity at every age. These ideas have been also confirmed by R.J. Sternberg (2000), who also found out that a man with less wisdom accepts ambiguous situations (dialectical thinking) when searching for the truth. Such a man according to Patočka (2000) does not escape negative experiences, nor does he suppress them, but accepts the problematic aspects of life where nothing is taken for granted, everything may be doubted; he is not fixed to anything that is on the move and finds unity in such a perspective. Such an open sphere leads him to be amazed at everything. Finding solid ground and the subsequent creation of a problem out of what has been found is the way of philosophy, in contrast to the factual science, to which Cartesian dualism (the division of the world into object and subject)[4] belongs. In this way, wisdom connects the split processes of logical knowledge with uncertainty and reflexivity; it represents a dialectic integration of all aspects of personality – actions, will, knowledge, creativity and life experiences. Heading towards it is, therefore, closely connected with the requirement

[4] Science provides us with certainty; it is something solid. It gives us the possibility to control our lives and the world around us. For most of the time it does not offer the experience of making the reality problematic, though. Even the most objective sciences nowadays seem to be well aware of the limits of their objectivization.

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for new trends, which appeal to the development of the skill of overall perception – getting to the gist of the problem, seeing the details from a detached point of view, finding interrelations among facts, etc. which would make it possible to deal with the gained knowledge in a creative and meaningful way. The integrative sense of experiencing and keeping a whole are the basic prerequisites for experience instruction. Knowledge should be integrated by whole child's personality, by his "spiritual core" and the activated system of "creativity". It is therefore necessary to secure complex development and personality formation; the evolution of the psyche is a whole. A creative educational process should be instrumental in achieving the ability to regulate all psychic functions, which requires the cultivation of the consciousness as a regulator of mental processes and the archaic layers of the brain. The basic method of creative thinking in a given context is concentration due to which there transpires hidden interrelations where there is a creative integration in the broadest and deepest sense of the word. What really seems to matter in the area of musical-pedagogic efforts is the ability to discover in music all the possible ways to the sensation of being fulfilled and re-discovering the sense of our being, as well as those to the discovery of unity and a whole of the reality.

The position of art in the world is its basic ontological determination. An artistic picture in itself reveals a close interconnection with substantial human interests and aims. By these essentials we can see the possibilities of creative thinking about meaningfulness and the formation of integration concepts which would represent a stimulating room for the development of the complex personality. In connection with the demand for orientation towards the complexity of the personality's development and the facts mentioned above, it is very stimulating and effective to build the basics of integrative pedagogy in junior school. It is shown that if this orientation is to be effective in the future, it means that it should help solve the problem of the complexity of man's personality. Its advantage lies in evoking a direct model situation which represents a kind of a pre-stage of the value system production with children, not only on the basis of cognition, but most importantly through

inner motivation, discovery of the over-individual complexity and harmoniousness with the world. The created system of understanding of the world determines decisions and options through which by means of consciousness there is an agreement of free acting with the highest recognised values, which opens up man for his very own creative possibilities, by means of which he is realized in an authentic way. A creative man thinks by both brain hemispheres in a parallel way. Thus, learning through a complex artistic experience, where the cognitive principle is connected with the picture principle, is a prerequisite for the knowledge skill and feeling through the depth of a work of art. The prerequisite is thus keeping the whole and integrative sense experience. The impact of a wide range of sign incentives, the ensuing decoding and interpretation of their sense, affects conscious as well as unconscious layers in the personality's structure, represents a crucial cultivation means, which stands for immense educational potential. Thus, a symbiosis of an educational-pedagogic as well as artistic impact is achieved, where also the process, as well as the final form, formative and forming aims, make sense. Integration comes into effect where originality and creative thinking are present. The real integration should thus exist at a higher level of creative philosophy and attitude.

Current problems of art pedagogy

The problem area of integrative procedures in music education is nowadays being solved in Slovakia in the most up-to-date school documents, state ISCED educational programmes, where music and arts education appear in the educational area of Arts and Culture (within primary education, of course) as well is in the school subject names, such as "Education by Arts" at primary school (8th and 9th grade) and "Arts and Culture" at grammar schools. From our point of view, however, there are still huge limitations as far as the determination of purposeful strategies and approaches is concerned. Moreover, music education more often than not takes place in the selected partial aspects of aesthetic education, without any systematic elucidation of the mutual inter-relations and bonds.

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It appears to be dominant is the functional nature of the subject without any interconnections with meaning, content or sense of the musical composition. The standard acquisition of an explicitly codified repository of knowledge, skills and habits of musical behaviour, in close connection with the development of specified musical skills, i.e. the system based more or less on drill, certainly does not do justice to the complex personality's development. There is, therefore, still a marked tendency for facts to the detriment of deeper reflections with respect to interconnections; there is still a conspicuous absence of the overall integration of knowledge of the world which would be instrumental in a global understanding of the world and that of the existence of man therein.

We want point out the degradation of education into the position of an ornament, something extra that can certainly be done away with. Culture against nature and life was brought by the schism in the cognitive paradigm of western man. Moreover, art and arts education found its way out of culture. As such it offers pseudo-facts, schemas, formulas, ideas and attitudes which are cut off from life and nature, preferring a surface level of methodologies, unconventional activities, where the scholastic attitude and purposeful manipulation prevail. The efforts to get to the gist of the matter as well as to discover deeper interconnections are underestimated. However, in such a context, arts education cannot exert itself as a morally inspirational and transcendental experience.

Alternative pedagogical concept

However, there are schools that aim for a transformation of the pedagogical paradigm in arts education towards freedom, creativity, playfulness and the independence of norms and prescriptions, respect for current facts that stem from the latest research into the increasingly globalized world, which brings in new problematic complexities. At the same time, they point out the need for respecting synthesis, integral consciousness, consciousness of mutual interrelations and relationships, and searching for context and sense.

Composer Juraj Hatrík, creator and initiator of alternative pedagogical forms and projects for various age groups of children, students, or adults (he gave artistic gigs, talk-shows, thematic educational concerts for schools, radio and TV, and was involved in projects and music-educational theatre) called for the most distinctive way of using this principle in the Slovak music pedagogy. Moreover, Juraj Hatrík is a representative of the efforts for the transformation of the pedagogic paradigm in the arts pedagogy, for which the superficial level of methodologies are being held on to too tightly, pseudo-conventional activities and organizational steps towards the already mentioned freedom, creativity and playfulness, are typical. In the realm of music, Hatrík (1997) suggests the use of a metaphor of a quick and unexpected idea. Furthermore, the didactic application of the cognitive metaphor finds its counterpart in the phylogenetic and ontogenetic development of the language. Hatrík therefore suggests a pictorial equivalent of thinking to foster simultaneously abstract thinking (language, speech). He draws on the experience that a metaphor is a kind of a creative bridge between concepts (the left hemisphere) and pictures (the right hemisphere), gives training in overcoming paradoxes, opens up the way from the picture to the concept, and thus it may become a bridge between artistic experience and artistic terminology.[5]

Thus, pictures, metaphors and allegories have their own cognitive potential and are hidden in the structure of our thinking. According to Hatrík (2007), the cognitive-relevant metaphorisation is to be steered towards the connotation field of the sense in such a manner so that the focus was thought in the purest link with the gist of the matter. In the musical-pedagogical realm, J. Hatrík compares it to the "explosion", which blows up the old, stable and rigid and brings in dynamics, suspense and breaks stereotypes, builds upon the strength of the metaphor, which is

[5] In the "Jar-raj" project, the author expressed the tone room metaphorically as a mandala, magic circle or spiral. In practice he makes a rich use of the metaphorical "revision" of the older terminology, which was further elaborated by T. Pirníková (cf. Metaphorisation of the harmonius cadence T-S-D-T as a family, metaphor of "genes" and tones which have common accords of cadence and which have various stages and levels of affinity).

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able to develop the knowledge from pictorial equivalents to an effective way of influencing the children's thinking. The metaphorization of the musical-theoretical problem area is most successful when the vehiculum (the activating and energetizing) item of the metaphorical pair is genetically conditioned by the nature, biomorphic or anthropomorphic signs.[6] Another particularly valuable idea for musical pedagogy is Hatrík's appeal to the gradual release of the mechanistic idea about the structure in the traditional thinking about music. He regards metaphorization of the relationship between what man experiences when facing music on the one hand and the way he thinks about it in an abstract way, on the other; how he is able to orient therein rationally, as the most effective tool. Metaphorical thinking, according to Hatrík, requires a constantly recurrent listener and interpretation experience because it is only in this way that what Krupa refers to as "a consciousness of the open-endedness of object, bound up with the consciousness of his depth" (Hatrík, 1997, p. 47) is able to grow and mature.

Hatrík gives paramount importance to integrative possibilities, which music is very easily open to. Making a musical composition didactic should according to Hatrík commence with an emotional participation, by an experience which is to be anchored in an inner-structure, so that spontaneous and intuitive moments could gradually be made intellectual, which is done through direct activities, such as singing, instrumental activities, dancing, etc.

Through the integration of activities in a musical-educational process, a high degree of experiencing is achieved, and it is precisely this experience of togetherness that leads to feeling through the universal

[6] According to Hatrík, the metaphorics "the growth from the seed" is very effective from a pedagogical perspective. It is applicable, first and foremost, to getting to the gist of the musical tectonics and form. New trends of musical pedagogy rank musical processes and organisms among living processes in nature and in the cosmos. Music in its essence moulds living processes with the inner organism under development. According to Hatrík, metaphorization of the structural phenomena in music, shifting the boundaries of given, generally known terms, which are also originally of a metaphorical nature, are effective.

whole. Hatrík's perception model represents a rare pedagogical attitude towards an authentic approach to a work, capturing the deepest aspects of the mysterious and dialogical nature of education, which centres on touching, perceiving and reflecting on the world as a whole. Hatrík (1997) steers his ideas towards the renewal of the quality of the personal relation to the work (work for me), ascertaining the degree of being interesting or effective for a particular person. Being apparent and hidden, which is given by archetypical meanings, triggers amazement and opens up a relationship and fascinates (cf. the symbolism of natural elements, the symbolism of the tree, circle or temporal cyclicity, etc.). The unnatural removal of the formulas of thinking from those of nature and life, so typical of European, western civilization, weakens the archetypical base, denigrates fairy-tales and the whole educational room for arts education in children. The work on live music is represented by the work with the wholes, uncovering and discovering a great many interrelations and levels against inanimate, stuffed, and in practice non-existing abstraction, e.g. removing melos from rhythm, metre, tempo and harmonious functionality, articulation and colour. Form-forming and expression-forming means are, in this view, two sides of the same whole as points of departure of hermeneutic interpretation. What is more, Hatrík places at the centre of attention a direct lively experience (a complex and individual one) with touch, musical form, structure, idea and legacy as a principle for preserving a synthetic unity. In the view of music and its structure, where dialectics and dynamism "part-whole" comes to expression, he therefore suggests preferring form as a unity between the created and perceived, between the structure and phenomena.

Taking Hatrík's view, the problem of the work for children is thus not the problem of quality reduction, even if some reduction cannot be avoided (especially psychological, ontological and ontogenetic ones). Nevertheless, children may get ready for their first experience with the big music, a quality art.

Hatrík's (1997) method of the perception analysis corresponds with the essentials of hermeneutics, drawing on a musical-semiotic concept, interpreting music as a sign system. It is heading from phenomenology

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via intelligibility to the essentiality of the inner-meaning, by gradual condensing, from which, in the set of associations and expression connotations, it is possible to arrive at a relevant semantic core. Thus, perception is understood by the author as a relationship between the listener and creator, which is being formed directly during the interaction. The projected and directed experiencing is inexorably bound up with the understanding of laws. What has not been experienced (orientation towards non-verbal or meta-verbal techniques of the analysis of the work) cannot be analysed theoretically or professionally.

Furthermore, making the musical-theoretical problem area didactic must be based according to Hatrík on gesture and structure, since every piece of music is a gesture (reflexive or contactable behaviour) as well as structure (a sophisticated universe of relations, structures, subjected to the laws of life). This requires the teacher to lay bare the expressive-existential roots of the problem area at hand (emotional participation) first in order to model the experiential sphere in such a way that spontaneous, intuitive moments can be made intellectual gradually, without distorting their complexities.

Conclusions

The principles above were employed by Hatrík when working on a variety of projects for radio, TV, stage, half-stage or education. For the contemporary practice of music pedagogy certain generalizations, as proposed by Hatrík as a reflection on his own music-educational projects that he made with his HTF VŠMU students, as well as with children and for children within his far-reaching pedagogical-educational impact, are of immense value.

The results of the qualitative analysis verified by us correspond to the results of experimental verification undertaken by E. Čunderlíková in Slovakia.

The results of research studies and the additional information of musical pedagogy teachers and students' reception and experience, carried

out to document Juraj Hatrík's musical-pedagogical work's influence and share in the context of Slovak arts education, confirmed a significant proportion of this approach has increased the quality level of efficiency and the impact of artistic effect when developing the required qualities of personality.

Such an approach to analysis and pedagogical interpretation requires an open, spontaneous and creative approach without prejudices, a priori certainties or adopted formal stances, accepting ambiguity, multi-dimensionality, and thus uncertainty or incompleteness of the meaning.

Crucial cultural and educational categories (such as those of respect, relationship, the good, love and so forth) open up the sensitive area of the life movement of a soul and rank among the myth-poetic experiences of the world, as well as human consciousness. Thus, if we want to keep awaking consciousness, we have to search for deeper sources, and in this manner awaken the connection between soul and art.

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Abstract:

In this paper we would like to highlight the current developments in the field of arts pedagogy in the context of wider trends in the philosophical and psychological thinking, which points to the the most significant aims of arts education, but which in teaching practice has still not been sufficiently accepted. At the same time, the paper aims to draw attention to a very effective and unique concept as proposed by the Slovak composer and pedagogue Juraj Hatrík. This musical-pedagogical method very effectively solves the identified problems of musical pedagogy, starting at the elementary level, where he addressed mainly conceptual and methodical questions. Allmost all projects and methodologies of that are proven and effective in practice.

Keywords: absence of the overall integration of knowledge of the world, scholastic attitude, purposeful manipulation, music art, creativity, complexities, wisdom, sense

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The Swing of the Pendulum – Objectivism or Constructivism in Language Education?

Introduction

In this paper, we shall explore the relation between the assumptions of a fundamental reality and general educational models in modern language teaching and learning. This aspect of post-method pedagogy has received the attention of scholars but needs further inspection because, as we shall demonstrate, it determines language education. The paper reflects on some marked differences among the existing language theories and practices within the traditions of objectivism and constructivism and their impact on early language education.

Objectivism and constructivism – educational ideologies which underlie different language teaching methods

There are two principles which influence all educational practices including the theories and practice of language learning: objectivism and constructivism. Objectivists claim that the world is an existing reality which does not depend on consciousness and is an orderly structured system with defined units, qualities and relationships. The application of this in education is that in order to learn something, "one should isolate one or more units (the things which are being learned) and categorize those elements correctly according to their characteristics and relations" (Lakoff, 1987, p. 164). People's knowledge is objective. Within this objectivist tradition we commonly find the "educational pyramids" noted by

Clark (1987), Duffy and Jonassen (1992) where the educational system provides the knowledge and activities to the teachers, and the students receive this knowledge from the teachers. Or in other words, teachers possess the knowledge which they in turn transfer or "give" to their students. In language teaching and learning, the objectivist tradition leads to methods orientated towards the language system; that is, the way the language works. In these teaching methods, the syllabus is designed around and according to the language material which needs to be learnt. Core planning is based around the selection and structuring of the phonetic, grammatical, lexical and pragmatic units. Arranged in this way, the materials are then taught to the students without necessarily taking into consideration their individual needs and learning styles, or the language learning process as a mental activity. A typical example of this approach is the Grammar Translation Method. Richards and Rogers (1986, p. 3) illustrate the principle of the method by giving an example of an exercise for translation from English to French in a textbook. Some of the sentences are: "The house is beautiful. He has a kind dog. We have a bread (sic). The door is black." The sentence is the main unit in this exercise and the different sentences are unrelated to one another. They totally lack a contextual framework. The Audio Lingual Method follows the same tradition. It is based on the methodological principles of linguistic structuralism which see language as a hierarchical structure of different levels in which the sentence is viewed as the highest level (e.g. Bloomfield, 1933), and psychological neo-behaviourism (Skinner, 1957). Language learning is seen as a process of habit formation and positive reinforcement that helps students to develop correct habits in accordance with Skinner's belief that learning depends on parents' reinforcement of their children's grammatical correctness. The method's assumption is that the spoken form of the language is more fundamental to language than its written form. Students memorise language patterns in the form of dialogues and repetition drills (Larsen-Freeman, 1986). James Asher's Total Physical Response (TPR) also follows the objectivist philosophy and is characterised by linguistic formalism, behaviourism, and competition. Asher (1977) sees acquisition of the second language as a parallel to the

process of children's first language acquisition. He believes that the human brain and nervous system are programmed biologically to acquire languages in a set sequence. Listening comprehension precedes speech, and the verb in the imperative form is seen as a central linguistic element around which language learning is organised. Imperative drills serve as a stimulus to form a habit formation (comprehension), and the reaction to this is a response by physical movement.

At the Northeast Conference in the U.S. in 1966, Noam Chomsky openly criticised and expressed his scepticism of the Audio Lingual theory and practice in language teaching. In time, the practice of pattern drills was rejected and neo-behaviourism, as a psychological theory, was also weakened. Structuralism in language teaching also gave way to new teaching methods.

Constructivism is the other ideology which underpins other traditions of language teaching practices. It claims that individuals gain knowledge from their own experiences and that there is no universal reality; rather, reality is a result of the constructive processes of the individuals. "There are many perspectives and meanings of each event or notion." (Duffy & Jonassen, 1992, p. 3). The view of constructivists is that learning is a process of personal interpretation of experience and construction of knowledge. "Learning is an active process in which meaning is developed on the basis of experience" (Bednar et al., 1992, p. 21). Early constructivism is related to the works of Piaget (e.g. 1953, 1970) who is considered the founder of the concept. "Piaget's and Dewey's theories of connecting what one sees with what one knows and can discover more about have been described as learning through experience." (Papatheodorou, Luff & Gill, 2012, p. 101). Piaget took particular interest in the education of children and conducted observations to understand how children acquire and construct knowledge. His extensive theory on cognitive development defines four stages, i.e. the sensor motor age (0–2), preoperational stage (2–7), concrete operational stage (7–11) and formal operational stage (11-onwards). Although he claimed that the physical and social environment were both important in children's learning, he placed greater emphasis on the former. "Piaget's (2002) interest and focus

were on understanding children's cognitive and mental process in constructing their ideas, as they experimented with the resources available. His ideas attracted the interest of educationalists who introduced the notion of learning by doing through the availability of appropriate resources and gradually shifted attention from *learning that* (knowledge transmission) to *learning how* (knowledge construction) (Hargreaves 2004)." (Papatheodorou, Luff & Gill, 2012, p. 7).

Constructivism lies at the heart of learner-oriented educational approaches, e.g. orientated towards active learning and learning by doing things as opposed to the language orientated approaches. As the theory of constructivism has developed, new versions have emerged. Social constructivism lays emphasis on social interaction as a source of knowledge. It views learners as individuals with their own specific needs and backgrounds. The socio-cultural constructivist theory places emphasis on learning in action, learning by taking part in social activities. According to Vygotsky (1997) children follow examples provided by more experienced adults, and with their help they gradually develop and enhance their abilities to perform tasks independently. He hypothesized the Zone of Proximal Development (ZPD), which determines what a learner can achieve without any help, and with the help of more knowledgeable people. "ZPD is the distance between the actual developmental level as determined by the independent problem solving and the level of potential development as determined through problem solving under adult guidance or in collaboration with more capable peers." (p. 33). Vygotsky argued that "learning awakens a variety of developmental processes that are able to operate only when a child is interacting with people in his environment and in cooperation with his peers" (p. 35). Children learn within their communities, with the help of teachers, peers and other experienced adults.

Community Language Learning (Charles Curran, 1976); Silent Way (Caleb Gattegno, 1972), and The Natural Approach (Stephen Krashen & Tracy Terrell, 1983) were among the new teaching methods of the 1970s and 1980s within this paradigm shift in which teaching and learning are student-orientated. In Curran's Method, students are seen as members of a community, and their interaction with each other is of major importance.

It is the students who decide on what they want to learn. On the other hand the teacher recognises the learners' anxiety and fears and tries to help them overcome these negative emotions. Warmth and positive evaluation of the work of the team members develop within the interactions of teacher and students (Curran, 1976). The idea that teaching is to be totally subordinated to the learning manifests itself in the Silent Way (Gattegno, 1972), which in this method the teacher remains silent and the students do the talking. In "Techniques and Principles in Language Teaching" Larsen-Freeman describes the most typical techniques of the Silent Way (1986, p. 66–68). "The teacher does not supply a model for the students but gives them the opportunity to develop autonomously their own inner criteria for correctness of language. […] Students learn from each other and not by repeating a model; […] the teacher is a silent gesturer, his role is to moderate and facilitate the learning process." Colour Fidel pronunciation charts, word charts and Cuisenaire rods are some of the most typical materials used in the classrooms. The language model is an attempt to relate to the cognitive processes of language learning. However, the method did attract some criticism. In general, it has been criticised for its extreme model of a silent teacher who does not provide any language input for the students. It is an artificial communication where the teachers remain silent but on the other hand the students do the talking, and this does not mirror real communication. Constructivist ideology is also the framework of the The Natural Approach (Krashen & Terell, 1983) to language acquisition which places great emphasis on the communicative role of language. Language is seen as a set of messages. Some of its techniques are similar to those of CLT. The model is based on five widely cited and spread theoretical hypotheses. The first and the most important of these according to the authors is language acquisition versus language learning: the former leads to implicit knowledge and the latter to explicit knowledge of the language being acquired. The natural order hypothesis refers to the order in which grammar structures are acquired. The monitor hypothesis claims that conscious learning functions as a monitor of what has been acquired. The input hypothesis (i+1) level of language input means that, in order to study a language, the students should be exposed

to language messages which are slightly above the level of their knowledge. The affective filter hypothesis accounts for the negative emotional experiences and states of the learners, so that, for example, a student who feels uncomfortable will have a high affective filter which impedes the process of language acquisition.

The shift in the educational paradigm from a student-oriented to a learner-oriented foreign language teaching style led to the rise of language practices which aimed at developing the communicative competences of the learners. The Threshold Level document of the Council for Cultural Cooperation of the Council of Europe was published in 1975 (Van Ek, 1975). It gives the specification for a basic level in a language which individuals need to have in order to establish personal or professional contacts in the countries where the foreign language is spoken. It marks the appearance of the so called Communicative Language Teaching or the Communicative Approach. Van Ek and Alexander (1975) and Wilkins (1976) proposed the functions and notions approach syllabus to syllabus design. This approach is based on the organisation of language material around notions, or contexts in which learners communicate, and functions or purposes for the learner to use language in a context. The approach underlines the need to teach communicative competence and use language effectively and appropriately as opposed merely to knowing how the language works. The threshold level for many languages has been published and work in this area is being defined in the document of the Council of Europe "The Common European Framework of Reference for Languages: Teaching, Learning and Assessment (CEFR)". Much has been said and written on communicative language teaching and the names of many authors are related to the development of this approach to language teaching. Dell Hymes (1972) introduced the notion of communicative competence in his famous work "On Communicative Competence". He drew the attention to the social context in which people learn languages and its influence on the linguistic competence. "A normal child acquires knowledge of sentences, not only as grammatical, but also as appropriate. He or she acquires competence as to when to speak, when not, and as to what to talk about with whom, when, where, in what

manner. In short, a child becomes able to accomplish a repertoire of speech acts, to take part in speech events, and to evaluate their accomplishment by others." (p. 269).

Constructivism in language education has been explored comprehensively by Tella and Mononen-Aaltonen (1998) at the Media Education Centre of the University of Helsinki. They relate constructivism to the concept of dialogism which they define as follows: "Dialogue is a crucial element in the creation of any language organisation and especially in establishing collaboration and networked environment. It suggests that the learning environment in the framework of dialogism cannot be a physical space, a classroom, not any particular media education tool. The learning environment is – dialogue." (p. 103).

Cummins (1994, p. 55) describes the pedagogical and social functions of educators and distinguishes between the objectivist and constructivist positions not only in methodological terms (the transmission of knowledge versus critical orientation), but also in sociological terms (social control versus social transformation orientation). "Educators' role definitions reflect their vision of society, and implicated in that societal vision are their own identities and those of the students with whom they interact. The outcome of this process for both educator and student can be described in terms of *empowerment*. Empowerment can thus be regarded as the collaborative creation of power insofar as it constitutes the process whereby students and educators collaboratively create knowledge and identity through action focused on personal and social transformation."

Changes in the focus of educational paradigms

The purpose of education is, of course, the subject of incessant debate, but the mission of all educational institutions is to educate people. Dewey (1938), one of the most influential contributors to the development of modern philosophy in educational thought, noted that educators should be able to maximise the use of physical and social surroundings in order to construct valuable learning experiences for their

students. "Vygotsky and other educational professionals believed education's role was to give children experiences that were within their zones of proximal development, thereby encouraging and advancing their individual learning" (Berk & Winsler, 1995, p. 25).

Snow (1996) also poses the question of the principal aims of education. He lists the three broad functions of education in society as advocated by sociologists. Educational institutions are viewed as systems which "select and identify talent" for the needs of society; they exist to communicate and encourage knowledge – they teach the facts, concepts, culture. "Beyond these functions, however, education has also always been concerned with fostering human readiness for further stages of individual and collective life". He defines the main goal of education as "aptitude for new learning" which he further specifies as "learning to learn, learning to reason, learning to find and solve problems, learning to be interested and industrious, to persevere, to achieve in the face of novelty, complexity, adversity, and change – in short, to develop readiness, that is, aptitude, for new learning" (p. 536–537). His argument is that aptitude development is the most important result of education.

The focus of the new shift in educational thought has been on teaching students how to think critically, how to solve problems, how to participate in dialogues. McLeod (1986, p. 37) pointed out that, "being literate in the 1980s means having the power to use language – writing and reading, speaking and listening – for our own purposes, as well as those that the institutions of society require of us. The classroom processes by which that power is achieved include the first exercise of that power." It applies not just to the development of the first language, but also to the acquisition and development of the second language. Attention has been drawn to the need for students to take responsibility for their own learning, to find joy in learning and open their minds to new ideas. Students are expected to develop the skills and attitudes necessary to achieve lasting success in life. The learning process should continue throughout their lifetime, not just while during the period of formal schooling. Educators emphasise that one of the most important things students should learn is how to think for themselves, how to make conscious decisions about

the professional and personal direction of their lives. Students need help and guidance in order to learn to solve problems in a rational manner, experience compassion towards others and resolve conflicts, contradictions and differences.

There has been a strongly felt need to move away from the what is now perceived to be an obsolete traditional paradigm of teaching in schools in which the instructors are responsible for the learning of their students: it is instructors who design and select reading materials and transmit information to their students in the form of the same set of lectures or lessons regardless of the students' individual needs and differences. The need to address and accommodate the individual psychological needs of the students has now been recognised. Whereas previously it was common for teachers to select the best students in the class and honour them with their undivided attention, whilst ignoring the less able students, educators are now encouraged to use a range of strategies designed to cultivate and develop the talents of all students. Teachers are also expected to direct their attention to students who may have special needs in aspects of their learning. Educators may no longer be content with a teaching approach that is only partly effective and works for a handful of students while the rest leave the classroom without a satisfactory understanding of what they have been taught.

David Perkins (1992, p. 78) at the Harvard Graduate School of Education has adopted a "performance perspective" on understanding. "Understanding is not a matter of 'either you get it or you don't'. It is open ended and a matter of degree. You can understand a little about something (you can display a few understanding performances) or a lot more about something (you can display many varied understanding performances), but you cannot understand everything about something because there are always more extrapolations that you might not have explored and might not be able to make." Understanding concepts involves performances which show the ability to use concepts in new, creative ways, beyond the level in which they have been taught.

As well as the learning process itself, emphasis is now placed on the importance of creating a physical and emotional environment which

will promote the development of positive group dynamics which in turn will facilitate learning and meet the students' psychological needs. In their study, "The Concept of Happiness", Thomas and Stock (1988) observe that young adults associate the word "friendship" with the concept of happiness. Bonding and development of friendships stimulate students' performance and achievement whereas isolation, individualistic or competitive classroom activities have a counter effect on their motivation and achievement. Group cooperation and group activities have been widely recommended. In their research on effective group management Johnson, Johnson and Smith (1991) discuss, among the other factors necessary for successful collaborative learning, the role of positive interdependence. The teacher's main function is seen as the creation of a positive interdependence among the students where each member of the group depends on everyone else, and where all participate and contribute to the achievement of common goals. If only individual students participate and other students do not join in, the group serves no positive purpose. Students should also help and encourage one another and build up a caring attitude towards learning. Education is a social process which involves student-teacher interaction and the development of social and collaborative skills. However, the application of collaborative learning is by no means an easy task since it depends greatly on the professional and personal characteristics of the teacher in order to be successfully implemented in the classroom.

Even though the need for radical change in educational practices has been recognised and accepted, there remain many controversies and different policies and views on the best educational strategies to apply at all levels of the educational system. One example of an attempt to combine different educational strategies in order to achieve high quality pre-school environment is the application of the Reggio Emilia pre-school system in the context of the US education system. In their paper, Warash, Curtis, Hursh and Tucci (2008) discuss the two opposing philosophical foundations of behaviourism and constructivism and argue that, despite their diametrically opposing standpoints, both have as their aim the development of independent learners, and the need to

focus on the learning of individual students and to adapt teaching methods to accommodate these needs. They put in focus the debate of teacher-directed and child-directed strategies of instruction and state that "the controversy between predominantly child-initiated activity and predominantly adult-initiated direct instruction has left some children stranded in the middle, when a balanced position is in their best interest" (p. 443). They are of the opinion that integration of strategies can be applied successfully and that the Reggio Emilia preschool system is such an example. However, as the authors point out, it does not escape the attention of those critics who express concern that the instruction in the school is too-teacher oriented to be developmentally appropriate. The approach focuses on awareness of children's capabilities and of ways of provoking children to exceed the expectations determined by external factors. The children are stimulated in such a way as to draw out that their ideas. They are frequently asked provoking questions in order to develop a better understanding of different perspectives. Children with learning difficulties are referred to as children with special rights in the school. Applied behavioural approaches and direct instruction, if done correctly, can help such children. Teachers observe their behaviour and apply teacher directed, peer directed or semi-directed instructions as appropriate. The school, which is a fusion of different theories and innovative practices, tries to reconcile many contrasting philosophies and thus achieve harmony.

A combination of principles from the two controversial and opposing philosophies is also recommended by specialists when working with children with special learning needs. For instance, Marcee Steele (2005), a researcher of special education at the University of North Carolina, Wilmington, discusses the benefits of applying an instruction which combines constructivist and behaviourist principles. In her view, teachers should be familiar with the strength and weaknesses of both philosophies and choose the most effective strategies as may be dictated by the child's learning characteristics, and the nature and content of the task. Teachers should be aware of all the different options and not stick to one pre-determined method in their classroom practices.

Early foreign language teaching and learning

The change in the paradigms, as we have seen, has led to new approaches aiming at applying various and innovative strategies as well as addressing and turning back to some tried and tested practices and principles found in previous methods. This applies equally to language teaching and early foreign language teaching where the pendulum has been swinging backwards and forwards between principles derived from objectivist and constructivist principles. The focus of research has once again been on finding the right "dose" in applying the teacher-student orientation strategies. One example of integrating different strategies and ideologies in early foreign language teaching is learning through actions or learning by doing things (Shopov, 2008). The environmental principles of the Total Physical Response combined with communicative strategies have been recommended as useful in the classroom practices. Within the total physical response the teacher's role is described as one of a parent who initiates actions of children by giving commands like "point to the door!", "draw a box on a chair", etc. This is alternated by songs, for instance, "touch something" and other communicative techniques as, for example, changing roles, where students give the commands (p. 296–301). In his book, "Early Foreign Language Teaching", Daloiso (2007) also discusses the usefulness of activities based on the Total Physical Response. He lists different playful techniques based on the game and postulates that TPR activities can also be rendered as playful. "Activities based on TPR method – a humanistic-affective communicative approach that considers the LA a slow process, one based on receptive experiences and easily stopped by events that are frustrating and cause anxiety, and also based on the involvement of the person's total experiential modalities – can also be considered playful".

The Narrative Format Model developed by Prof. Traute Taeschner from Sapienza University of Rome (The Magic Teacher, *Learning a foreign language at nursery school – results from the project*, 2005) is another innovative teaching method designed in the tradition of the Communicative

Approach. It is based on establishing an affective relationship between teacher and all pupils and sharing collaborative, long-lasting emotionally-charged experiences in the target language. It offers a consistent and holistic methodological framework that leads to the full development of children's foreign language skills and enhances their physical, emotional and psychological growth.

Conclusion

The new socio-political and economic reality of the 21st century requires a new educational paradigm in which mutual cooperation prevails in the classrooms, success is measured by the educational goals achieved, and students who can think critically, invent, experience and consolidate new knowledge on their own as autonomous learners. A shift from *learning that* to *learning how* has been observed. Modern education should be learner – oriented and learners should gain new knowledge and experiences by *doing things*, and not by "talking about the language". Emphasis is now placed on creating an appropriate physical and emotional environment which promotes the development of positive group dynamics. Within such an environment, language learning can be greatly facilitated and enhanced and learners' psychological needs best met.

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Abstract:

This paper reviews objectivism and constructivism: the two educational ideologies which underlie different language teaching methods, applied in the classrooms for decades. It reflects on some marked differences among the existing language theories and practices within the two traditions and their impact on early language education.

The authors emphasize the changes in the focus of the educational paradigms and the need of working methodologies and classroom practices that are in line with the contemporary requirements of modern education. A shift from learning that to learning how has been observed. Young students should be able to have new experiences in a new language by doing things as autonomous learners within a group that has established a positive learning environment. The focus of research should be on developing and applying effective, age-appropriate approaches which will facilitate the language learning of children and enhance their overall physical and psychological development.

Keywords: language education, objectivism, constructivism

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REPORTS & REVIEWS

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Tradition and Innovation in Education of Modern Teachers' Generation VI. – International Scientific Conference in Levoča

Society is constantly changing. Therefore, there must be significant changes in the provision of education for coming generation. It is teachers who, besides family members, have a significant impact on the personality of a child, and, can influence the kinds of knowledge, skills, experience, attitudes he or she takes from his school into real life.

The sixth conference in the cycle of international scientific conferences on *Tradition and innovation in education of modern teachers' generation* took place on November 8, 2012 in Levoca, Slovakia. The specific areas that the conference covered were the issue of history, the present times and the perspectives of: Pre-school and Elementary Pedagogy, Therapeutic Pedagogy, Social Pedagogy and other related disciplines. The Institute of Juraj Pales in Levoca – workplace of the Pedagogical Faculty of the Catholic University in Ruzomberok, was the main organizer of the international scientific conference. The co-organizers of the conference were the College of Economics, Tourism and Social Sciences in Kielce, the University of Natural Sciences and Humanities in Siedlce, the University of Silesia in Katowice, the Faculty of Education of the University of Ostrava, the Jesuit University Ignatianum in Krakow, The Humanity Association "Acceptance" – the center of psychosocial prevention in Spiš, the University of Miskolc, Szent István University, the Faculty of Education in Szarvas, the Higher School of Health Education and Social Sciences in Łodź, the University of Sofia "St. Kliment Ohridski" in Sofia, the Carpathian National University of Vasyl' Stefanyk in Ivano-Frankivsk, the Academy "Kokshe" in Kazakhstan, the Maritime Academy in Szczecin, and the University of Information, Technology and

Management in Rzeszow. Among those who were invented were quests from Slovakia, Poland, the Czech Republic, Ukraine, and Kazakhstan.

The conference was for scholars and professionals from various educational fields and others concerned with the theme. Presentations were oriented on the issues of pre-school and elementary school pedagogy, therapeutic and social pedagogy focused on the themes: functional literacy, strategies of education, and continual education of teachers.

The programme of the conference traditionally begins with Holy Mass in the Chapel of St. Valentine at the Institute of Juraj Pales in Levoca. The plenary lectures dealt with the key areas within the context of the main theme of the conference and the issue of the Preschool, Elementary School, Therapeutic and Social Pedagogy. Prof. dr hab. Adam Stankowski, Poland, made a contribution on *The Education of teachers – regional aspects of qualification, EDUCATION*, doc. PaedDr. Beáta Akimjaková, PhD., the Slovak Republic, focused on *The Christian education of pupils with problematic behaviour*, doc. PaedDr. Vladimír Klein, PhD., the Slovak Republic, made a contriubution on *Inclusive education in Slovakia*, prof. nadzw. dr hab Zbigniew Domżał, Poland, introduced the theme on *Perception of the child in primary school*, prof. Vasil Chrušč, Ukrajine, made a contriubution on *Issues pertaining to the training teachers-to-be under the conditions of modern Ukrainian higher education*, PhDr. Iveta Franzenová, PhD., Slovakia, presented Reflections on current changes of the family and its consequences, dr hab Leszek Ploch, Poland, gave a presentation on *The threat of artistic activity for people with disabilities*, and finally, PhDr. Mgr. Martin Kaleja, PhD., Czech Republic, focused on *Roma pupils with special educational needs in basic schools in the Czech Republic*.

The contributions were followed by discussion in the sessions, where the participants mainly discussed the area of pedagogic activity as a means of training developing the professional culture of prospective teachers, applying information technologies in comprehensive schools of mountain regions, training teachers to work with a gifted personality, the psychological preparedness of a teacher as an agent to manage educational activity and others subjects dealing with functional literacy, strategies of education, and the continual education of teachers.

Holy Mass, discussions in the plenum and sessions were followed by an attractive culture programme, which included a music performance by integrated group "Mazowjaci" from Warszawa.

The themes of the talks and contributions were varied. However, they had a common purpose in that they reflected on the present state and to propose and possibilities for innovation in Pre-school and Elementary School Pedagogy, Therapeutic and Social Pedagogy and related disciplines. The organizers intend to continue in organizing the cycle of international scientific conferences and to discuss the themes on Special Pedagogy, but above all else, they intend to focus on Pre-School and Elementary Pedagogy and related disciplines.

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Complexness and Integrity of the Faculty of Education

The Faculty of Education at the University of Prešov is a unique institution in that its profile is exclusively connected with pre-school, primary and special education. For decades, such a unique profile has provided the researching, outlining, striving and confirming of new trends in educating the youngest and the most vulnerable. The new and innovative trends fostered by the Faculty of Education have for a long time been connected with research teams of the Department of Communicative and Literary Education and the Department of Children's Language and Culture.

The activity of the research team members is focused on the issues of the efficient methodology of the Slovak language in primary education, and at designing a complex and interactive textbook for tertiary education. The effort succeeded, following the excellent completion of two grant scheme projects which aimed, in the first case, at exploring the possibilities of developing literary-communicative and subject specific competences of prospective teachers in pre-school and elementary stages through electronic education (2006–2009) and, in the second case, at integrated didactics (curriculum and instruction) of the Slovak Language and Literature for primary education (2009–2011).

The research team was led by Assoc Prof. Ľ. Liptáková, and drew from multiple resources in working on their innovative conception. On the one hand, there were urgent demands of pedagogical practice as the new school reform brought a request for publications that would be instrumental in teacher training within the reformed educational conception. The national curriculum for primary schools, on the other hand, similarly brought a need to develop subject specific and didactical competences

of future teachers in their teaching of the Slovak Language and Literature. When working on the project of integrated didactics, the research team also followed up on their previous lingual-didactic and literary-didactic research, as well as on their own experiences in preparing prospective primary school teachers, which has a complex and integrated character.

The main research outcome was the publication of an already successful textbook for teacher trainees *Integrovaná didaktika slovenského jazyka a literatúry pre primárne vzdelávanie* [*Integrated Didactics of the Slovak Language and Literature for Primary Education*] (2011). The book is the product of several years of incubation, joint creative effort, pedagogical work and research in the field of the Slovak Language and Literature for primary education. It is a thought-out and coherent conception presenting the integration of linguistic, literary and communicative-productive elements in educating pupils at the elementary stage of schooling. The textbook applies an interactive approach combining printed passages with online webpage support (www.indi.pf.unipo.sk). The webpage contains interactive and multimedia applications with a hyperlink connection to other important resources. Multimedia files offer concrete methodological solutions to integrated teaching units.

New trends in education are also reflected in some other related activities of the Faculty of Education. One of the most important events held in recent times was an international scientific conference organised at the occasion of the 15th anniversary of the University of Prešov. The Faculty of Education, as one of the founding faculties of the University of Prešov, organised the international scientific conference under the heading **Complexness and Integrity in Pre-school, Primary and Special Education** which was held on 20th–21st September 2012. The conference in which the whole faculty actively and enthusiastically participated was a follow-up event in the tradition of organising conferences oriented at the issues of training teachers for pre-elementary and elementary stages of education.

The international conference succeeded in gluing together the research elite of theoretical and didactic thinking in the domain of preschool, elementary and special education. The conference theme, which

encompassed broadly conceived notions of complexness and integrity, as well as the large number of participants (130) from Slovakia, the Czech Republic and Poland, had indicated that in order to achieve a fully-fledged discourse governed by the two notions covering graduates' competence and the fields' didactics, a timeframe of a minimum of two days would be optimum.

The conference was opened in the name of the rector by the vice-rector of the University of Prešov, Prof. M. Portik. The vice-rector's opening address was followed by the dean of the Faculty of Education, Assoc Prof. J. Burgerová, who opened the plenary session with her paper (Selected Aspects of the Quality of Education in the University of Prešov). The session continued with the report of Prof. M. Portik (Teacher in the Context of the Quality of Education), followed by Prof. H. Lukášová (Holistic Conception of Pupils' Development and its Implications for Primary Education) and Prof. A. Klim/Klimaszewska (Implementation of Pre-school Education for Children with Special Educational Needs in Poland). The keynote papers have tackled three educational aspects of teacher training which were outlined in the conference title.

Within the time-frame of two days, seven sections were created in which – respecting the complexness and integrity even when dividing participants according to their expertise into the sections – many specialists in the areas of pedagogy, psychology, language, literature, artistic expression, mathematics, technical disciplines, special education and health education met and engaged in relevant disputes about professional competences of pre-school, primary and special education graduates.

On the one hand it can be stated that the quantitative indicators by which the conference can be described are impressive; on the other hand, many participants, in their sincere formulations, did not restrict themselves solely to quantitative assessment. And it is just such a warm humane assessment, brought about by the conference climate as well as informal personal discussions, multiplied by the ancient university spirit of human knowledge present in the premises of the Faculty of Education, which all of those who organisationally contributed to the successful scientific and social event value the most. The undisputed benefit of all

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didactics textbooks and meetings of experts is in the quality of education from its earliest stages. The key principles are, however, the complexity and integrity which respect to the development of cognitive abilities of a pupil sitting behind the desk.

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Book Review of "Integrated preschool education with English language" by Jolanta Karbowniczek

Unquestionably, a good knowledge of foreign languages is crucial in the modern world. The sooner it begins, the more effective it can be. Since the beginning of the school year in 2008, learning foreign languages in preschool education has become obligatory. Together with that change, many questions have appeared concerning the methods of teaching young pupils and especially the relationship between lingual subject matters with other classes. In the quest for answers to these inquiries, Jolanta Karbowniczek's book "Integrated preschool education with English language", published by the ERICA Publishing Institute in Warsaw, is particularly useful. The book is an excellent guide for students and teachers interested in teaching English language in preschool education.

The structure of the book is very clear. In the first chapter, the author presents the idea of integration in preschool teaching, its historical background and the most important concepts of integrated teaching which became the foundation of contemporary pedagogy. Then, the writer focuses on the characteristic of the intellectual development of a child at a preschool age, emphasising that it is the "golden age" of a child's development. Afterwards, the goals of teaching the English language are presented together with the methods and techniques supporting linguistic activeness. Much attention is paid to alternative methods such as the "Total Physical Response", "The Silent Way" or "The Natural Approach". The author suggests using these methods of teaching which motivate pupils to learn and evolve their linguistic abilities. She encourages

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modifying these methods as there is no one, solid and fully effective method of teaching.

Games and recreation time play a huge role in teaching young learners but they must be properly conducted. Except for well prepared proposals of games which will be useful when teaching English, the reader can also find here some methodological clues for their application. They can be very helpful, especially for those teachers who are just starting out in this profession.

The second chapter deals with new teaching programmes, with strong emphasis on English teaching programmes for young learners in preschool education. Readers should be deeply satisfied with the valuable suggestions concerning the designing of schemes for integrated lessons. They are accurate, easy to remember, and helpful for both young teachers and experienced educators as well.

The last chapter is a set of prepared scenarios of integrated lessons with the English language. They can be used as ready-to-use lesson plans or just suggestions for teachers when preparing their own lesson plans. There are three examples of lesson plans for each class in preschool education; that is, three plans for the first, second and the third classes respectively. Well prepared worksheets, lyrics and poems are attached to each lesson plan. The scenarios presented in this book are a great example of how to combine teaching English with other skills in preschool education.

Mrs Jolanta Karbowniczek's book includes many helpful clues, matters most commonly sought by teachers regardless of their professional experience. The author does not impose her ideas on the reader, but rather encourages him or her to modify the available methods and techniques at work. The propositions presented in the book concern both the right choice of teaching programmes, forms of work, as well as the preparation of lesson plans. Hence, they can be very inspiring for each and every teacher to search for their own interesting solutions while teaching English in preschool education.

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Małgorzata Szpotowicz, Małgorzata Szulc-Kurpaska "Teaching English to Young Learners" Warszawa, PWN, 2011 – review

Today teaching foreign languages is very popular. Owning to the migrations of people, the world has become multicultural and multilingual. We have to speak foreign languages to communicate to each other effectively. This is also true for young citizens. In many countries children learn the foreign languages from an early age. There are many theories and methods of teaching foreign languages which are still being refined. Teaching foreign languages is obligatory at the primary level in many European countries, and has been the case in Poland since 2008. The most commonly taught language is English, which is an international language these days. According to research, most children in Poland (from the first to the third classes) learn English. There are many publications that include methodical guidance for the teaching of foreign languages. However, there are not many of them devoted to the methodology of teaching for elementary learners. One of them is *Teaching English to young learners* which has been written by Magdalena Szpotowicz and Małgorzata Szulc-Kurpaska. The authors have examined the reality of Polish educational system, especially the rules of integrated early education level.

The authors have experience of teaching children and teachers who are interested in the practical preparation for teaching English to young learners. Magdalena Szpatowicz is the leader of the Foreign Language Section at the Educational Research Institute and is a graduate of the Institute of English Studies at the University of Warsaw. She is a lecturer at

the Centre for Foreign Language Teacher Training at the University of Warsaw and a lecturer at the Faculty of Education who specializes in the Teaching of English in Early Childhood. She has written a number of English language textbooks for primary schools, a curriculum and teaching aids for foreign language teachers. Since 2006 she has been the national coordinator of the international research project on Early Language Learning in Europe. Her research interests include child language acquisition and English language teaching methods. Unfortunately, there is not much information about the co-author of this publication. Małgorzata Szulc-Kurpaska graduated from the Wroclaw University, English Department and she works at an English Teacher Training College. Szpotowicz and Szulc and Kurpaska are the co-authors of *Sparks* – a course-book for primary classes and some articles published in *The Teacher*.

This publication is addressed to teachers who want to acquire practical preparation for teaching young learners. It consists of twelve chapters. Most of them contain a theoretical section – this discusses the factors influencing teaching and a practical section with proposes activities and some points for discussion. The book contains substantial knowledge about the process of teaching English that can help the teachers implement it successfully. The supplementary materials, such as lesson plans, attainment targets and model letters to parents are also very useful, especially for inexperienced contemporary teachers.

In the first chapter, the authors perceive the tendency to lower the age when obligatory language education is introduced. They claim foreign languages are taught in primary school and kindergartens mostly because it is wildly believed that starting a language earlier provides better opportunities in the future. The authors compare the system of teaching foreign languages in European countries, which is very interesting for a reader and broadens his/her mind through the use of comparative studies. The authors suggest that the early start allows to reconsider many factors that influence the learning process. They suggest that the success of early foreign language learning depends largely on how it is organized. In this part of the publication, the authors ask some questions of the role of foreign language teachers that can inspire individuals to re-

consider that matter. In the next parts of the book, they try to find the answers to them.

The second chapter consists of some theoretical and practical knowledge of how to integrate English into the primary curriculum. The authors admit that this is not easy an task even for more experienced teachers. At the same time, they point out that integration is natural (children learn holistically) and remind us that it is key factor when teaching foreign languages productively. Kurpaska and Szulc-Szpatowicz propose some ways that will allow for integration, such as through the topic (topic-centred), through the method (activity-based learning) and task-based learning. These propositions can be used by teachers or can be stimuli for their own research.

The next chapter consists of an original approach towards the aims, principles and factors that influence the teaching-learning process. These propositions based on the author`s experience of working with elementary learners and some psychological knowledge of child development. The authors point out that the planning of the educational process is very important and is an integral part of teaching. Some valuable principles of lesson planning are included in this part of the publication. The authors also explain some uncontrollable factors which influence the lesson. One of these is the fact that each pupil has her/his own natural abilities and disabilities that the teachers should take into account when making the learning process more centred upon the individual.

The main part of that book is devoted to teaching language skills, such as teaching vocabulary, pronunciation, listening, speaking, reading and writing and also playing with grammar. I am convinced that these important contents will help educators to teach competently. The last chapters consist of many activities and resources (songs, chants, rhymes, games, etc.) that are also practical.

The publication has been written by professionals. It is a compendium of knowledge, the most important aspect of which is the combination of the theoretical and practical approaches. Readers can find many instructions and a great deal of encouragement to teach English more effectively.

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That publication is written in the English language. However, it is suitable also for Polish readers who can both acquire more information and practice in the English language. The language used by the authors is comprehensive and clear. There are some special pedagogic terms but they are explained and understandable.